

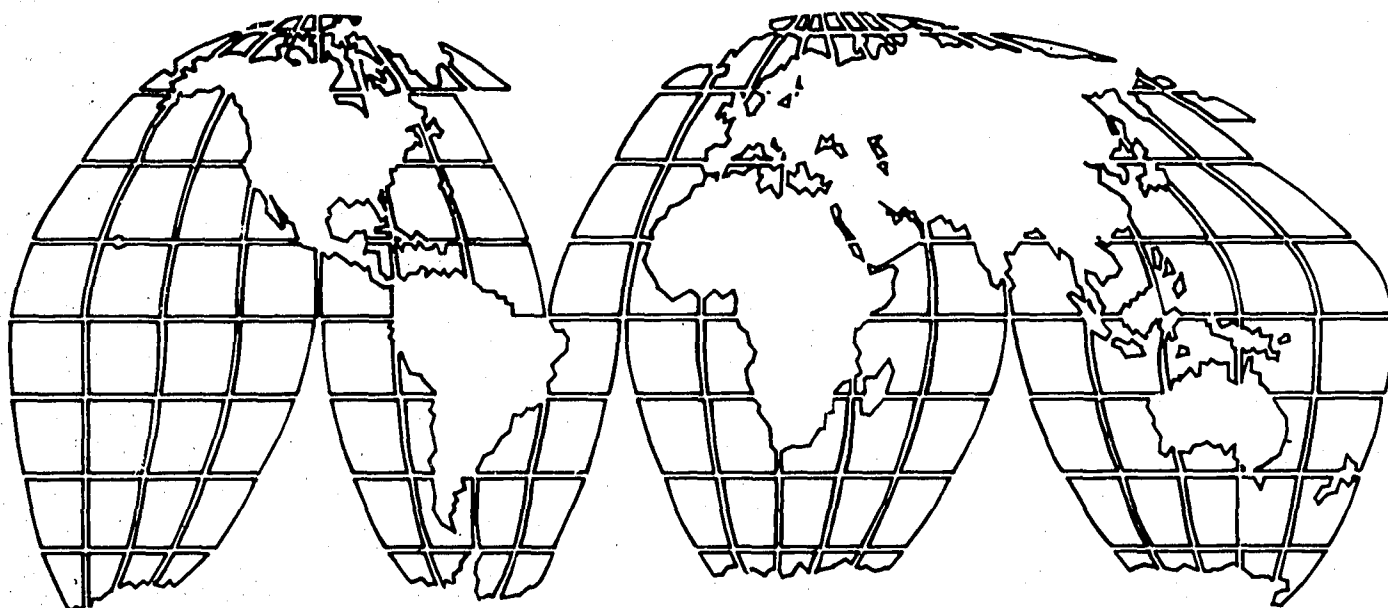
PN 111

ISN 33398

3060090

A.I.D. Evaluation Special Study No. 18

The Helmand Valley Project in Afghanistan



December 1983

U.S. Agency for International Development (AID)

PN-AAL-028

Report Documentation Page				Form Approved OMB No. 0704-0188	
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE 1983		2. REPORT TYPE		3. DATES COVERED 00-00-1983 to 00-00-1983	
4. TITLE AND SUBTITLE The Helmand Valley Project in Afghanistan				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) U.S. Agency for International Development, Ronald Reagan Building, Washington, DC, 20523-0016				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) U. S. Army Geospatial Center, ATTN: CEERD-TO-I (Hadden), 7701 Telegraph Road, Alexandria, VA, 22315-3864				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT Same as Report (SAR)	18. NUMBER OF PAGES 68	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

PNAA 028

THE HELMAND VALLEY PROJECT IN AFGHANISTAN

A.I.D. Evaluation Special Study No. 18

by

Cynthia Clapp-Wincek
Social Science Analyst
Bureau for Program and Policy Coordination, A.I.D.

with the Analysis of Farm Economic Surveys by

Emily Baldwin
Evaluation Office
Bureau for the Near East, A.I.D.

U.S. Agency for International Development

December 1983

The views and interpretations expressed in this report are those of the authors and should not be attributed to the Agency for International Development.

A.I.D. EVALUATION PUBLICATIONS

A complete list of reports issued in the A.I.D. Evaluation Publication series is included in the back of this document, together with information for ordering reports.

TABLE OF CONTENTS

	<u>Page</u>
Preface.	iv
Foreword	v
Acknowledgements	vi
Summary.	vii
Program Data Sheet	ix
Glossary	xii
Map.	xiii
I. Introduction.	1
A. History	2
B. Political Economy	7
II. Projects Impacts.	9
A. Changes in Income	10
B. Social Impact	14
C. Macroeconomic Impacts	17
D. Aspects of Integration: Beyond Irrigation.	18
E. Impact on Health and Water Supply	19
F. Impact on Education	20
G. Development Project Integration	21
H. Environmental Impacts	21
I. Institutional Impacts	23
III. Conclusions.	26
IV. Lessons Learned	27

Appendixes

- A. Analysis of Farm Economic Surveys
- B. A Note on Corruption

Bibliography

PREFACE

A highly complex irrigation and resettlement effort to harness the water reserves of the Helmand River, the Helmand Valley Development Project consisted of 25 projects assisted by the Agency for International Development (A.I.D.) and its predecessor, the Technical Cooperation Agency.

Official U.S. involvement began in 1949, and ended in 1979, with the Soviet invasion of Afghanistan. As this paper makes clear, the growth in agricultural productivity and income in the Valley over this period were impressive. However, by 1975, inadequate attention to drainage and salinization problems had begun to cause serious deterioration in farm conditions. If allowed to persist, these problems will eventually undermine whatever gains were made over the past three decades.

This paper was written by Cynthia Clapp-Wincek of A.I.D.'s Office of Evaluation, Bureau for Program and Policy Coordination. It is part of a series of studies conducted by the Office of Evaluation on past A.I.D.-assisted area development and irrigation projects. The focus in these studies is on projects' social and economic impact on host country peoples. Since it was not possible to do a field evaluation, the author was compelled to use information gleaned principally from written documents. Unfortunately, the available literature is incomplete, particularly on the issue of impact. Despite the constraints imposed by this admittedly severe limitation, this paper remains the most coherent historical record we have on one of the Agency's pioneering development endeavors. It is also a cogent articulation of the need for close attention to the social and cultural dimensions of affected population in resettlement schemes of area development projects.

Marion Warren
(Acting) Division Chief
Office of Evaluation
Bureau for Program and
Policy Coordination

FOREWORD

The development of the Helmand Valley in Afghanistan has had a long and rocky history. Because it was thought that something could be learned from this experience, the Office of Evaluation chose to include it in their assessments of irrigation and integrated rural development projects. Due to Russian military activity, field work was impossible, and therefore, it was necessary to rely on materials available in Washington, D.C. The project was famous enough to be cited frequently in the academic literature, but the main source of information was AID retired files. In addition, a number of people who worked in the Valley were interviewed and were very generous with their time and recollections.

When the three Farm Economic Surveys were discovered in the retired files, the opportunity for economic analysis became apparent. Emily Baldwin, Evaluation Officer in the Near East Bureau, agreed to analyze the three surveys. Her findings are included in Appendix A. Although I drew very heavily on this excellent work, the views and interpretations in the main body are my own.

ACKNOWLEDGEMENTS

The Helmand Valley Project is one of the most famous (if not infamous) of A.I.D.'s large, infrastructure-based, integrated rural development projects. I would like to thank Richard Blue and David Steinberg of the Office of Evaluation for the opportunity to present some of AID's experience in the Valley. Their comments and advice throughout the process were also much appreciated.

Because Russian military activity made fieldwork impossible, I had to rely heavily on AID retired files. When the three Farm Economic Surveys were discovered in the retired files, the opportunity for economic analysis became apparent. Emily Baldwin, Evaluation Officer in the Near East Bureau, agreed to analyze the three surveys. Her findings are included in Appendix A. Although I drew very heavily on this excellent work, the views and interpretations in the main body are my own.

In addition, a number of people who worked in the Valley or were involved in the Afghan program were interviewed and were very generous with their time and recollections. I would like to particularly thank Lou Stamberg and Dave Levintow for their ongoing assistance.

Cynthia Clapp-Wincek

SUMMARY

The Technical Cooperation Agency, the predecessor to the Agency for International Development (AID), began providing assistance to the Afghan Government in 1960 for development of the Helmand Valley, following up on work done by an American company on contract to the Afghans and previous work done by the Germans and the Japanese. The purpose of the development was to settle new farmers on land reclaimed through irrigation. American assistance of approximately \$80 million continued for several decades in 25 different projects.

Land under cultivation increased from 77,000 to 145,000 hectares. Fifty-five hundred (5,500) families were settled and many farm families resident in the Valley benefited as well. Average farm incomes increased by as much as 10 times, although deteriorating soil conditions were slowing the rate of increases. Where soil deterioration caused by salinity was very severe, incomes actually decreased but remained significantly higher than their original levels. The new settlers did not appear to have been able to deal with problems as well as the farmers who had been living in the Valley, and this is reflected in the changes in income. Some inequities were inadvertently caused by Government policies on credit and land reform.

The scope of the development in the Valley shifted over the years from irrigation to integrated rural development. Settling nomads led to this shift, but in spite of the commitments to the settlers, the enormity of the difficulties on the irrigation side considered the time and attention paid to other aspects of the project.

Lessons Learned

1. An area development project centered on a project to increase agricultural production must consolidate the gains made in production before any positive social impact can be sustained. For benefits from social services to be significant and sustained, they must be given high priority and they must be integrated into the project.
2. For successful nomad settlement programs, three conditions must exist: (1) economic incentives great enough to convince nomads to give up their traditional way of life; (2) adequate social services to assist them in the transition and to act as additional incentives; and (3) communication of agricultural

information, creatively integrated into the project (farmers do not get information only from extension workers), with enough resources to reach even very small farmers.

3. It is often repeated that when a project becomes the donor's project and is no longer the host country's project, trouble will develop. Their common goals must be clearly defined, agreed upon, and planned on a long-term basis.
4. There is no getting off cheap. Programs to make the desert bloom are enormous and expensive. If AID is involved in any way, its success is dependent on the success of the entire effort. No success can accrue to AID for a well-designed and well-implemented portion of a project which fails as a whole. Although every constraint does not have to be tackled at once, if provision is not made at the beginning for all essential elements, AID risks getting sucked further and further into a haphazard effort with no prospect of final success.

PROGRAM DATA SHEET

1. Country: Afghanistan

2. Program Title:

Helmand-Arghandab Valley Development (most often referred to as "Helmand Valley Development Project")

3. Projects:

Project No.	Title/Mode (G=grant, L=loan)	Years	Obligations ¹
06-12-020	Helmand Canal Operation and Maintenance ²	1957-59	\$ 25,000
06-12-021	Helmand Surface & Groundwater Investigations ²	1957-60	330,000
06-99-050	Helmand Valley Authority Development Operations ²	1957-60	424,000
06-99-056 & 06-99-072	Helmand Resources Development ²	1958-61	6,070,000
19-060	Agricultural Development in Helmand Valley ²	1961	725,000
M-96-AE	Helmand Valley Audio-Visual Center ²	1963	64,000
006	Public Health & Sanitation ³ (G)	1956-58	76,000
022	Helmand Rural Development ³ (G)	1956-61	22,000
024	Helmand Public Administration ³ (G)	1956-57	88,000
026	Helmand Training Center ³ (G)	1956-59	132,000
041	Helmand Arghandab Valley Electric Power ³ (G) (L)	1957-74	13,347,000 400,000
046	Industrial District Kandahar ³ (G)	1957-60	95,000
052	Helmand Land Development ⁴ (L)		498,000
053	Helmand Irrigation Survey ⁴ (L)		520,000

3. Projects (cont.):

Project No.	Title/Mode (G=grant, L=loan)	Years	Obligations ¹
089	Lashkar Gah Housing ³ (G)	1963-67	\$ 113,000
090	Helmand Arghandab Valley Regional Development ³ (G)	1954-74	20,185,000
101	Kajakai Hydro Electric Power Plant ³ (L)	1967-78	14,727,000
102	HACU Equipment (Shamalan) ³ (L)	1968-76	3,887,000
106	Technical Support-Helmand Valley ³ (G)	1967-75	1,086,000
	Agriculture Finance Agency ⁴ (L)		599,000
	Kandahar Diesel Generator ⁴ (L)		400,000
136	Regional Electrification, Kajakai Service Area ⁵ (L)	1975-78	195,000
145	Helmand Valley Soil & Water Survey ⁵	1975-77	151,000
146	Central Helmand Drainage (I) ⁵	1975-80	1,648,000
149	Central Helmand Drainage (II) ⁵	<u>1977-81</u>	<u>6,177,000</u>
	Total AID Inputs		\$71,984,000

¹For projects from the AID Project History List, this column represents amounts obligated and expended.

²AID Projects Active in FY 63 by Country and Field of Activity, AID, Statistics and Reports Division, pp. 2-3.

³L. Stamberg, Helmand-Arghandab Valley Regional Development (1954-1974), mimeo 6175. (Drafted for Development Studies Program, Agency for International Development.)

⁴L. Stamberg; but were not identified in AID Project History List.

⁵AID Project History List, represents AID's PAISHIST accounting data.

4. Project Areas Irrigated from the Helmand and Arghandab Rivers:¹

Helmand Province

Nad-i-Ali
Marja
Shamalon
Darweshan
Khanishin
Seraj
Girishk
Sanguin-Kajakai
Musa Qala-Zamin Dawar
Nowzad

Kandahar Province

Maiwand
Dund-Daman
Arghandab
Punjwai

¹With the exception of Nowzad and Zamin Dawar which are irrigated by Karezes and Musa Qala which uses water from Karezes and the Musa Qala River (a tributary of the Helmand).

5. Project Funding:

a. AID Total	1957-1979	72.0 million
b. Export-Import Bank ¹	1949-1959	39.5 million
c. Afghan contract with Morrison-Knudsen ¹		20.0 million
d. Afghan Local Financing ¹		<u>5.0 million</u>
Estimated Total		136.5 million

¹L. Stamberg.

6. Host Country Exchange Rates:

- a. Name of Currency - Afghanis (Afg)
b. Exchange Rate at Time of Program:

Afg 65 = U.S.\$1 (1963)

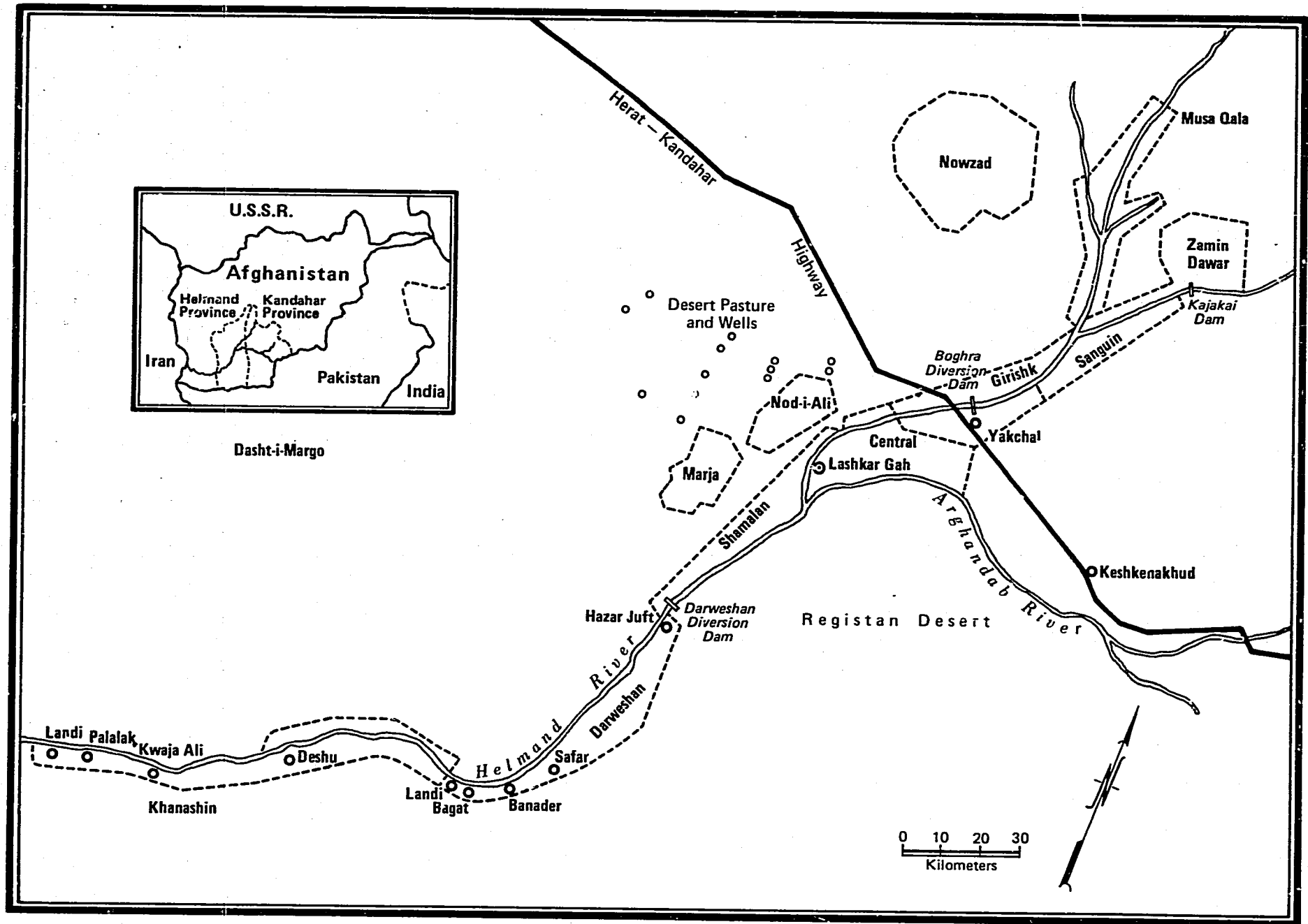
Afg 75 = U.S.\$1 (1970)

Afg 55 = U.S.\$1 (1975)

GLOSSARY

ACU	Afghan Construction Unit
AID	U.S. Agency for International Development
BuRec	U.S. Bureau of Reclamation
HACU	Helmand-Arghandab Construction Unit
HAVA	Helmand-Arghandab Valley Authority
HVA	Helmand Valley Authority
HYV	High-yielding varieties
ICA	International Cooperation Administration, predecessor to the Agency for International Development
<u>khān</u>	Wealthy and important man
<u>kochis</u>	Nomads
MK	Morrison-Knudsen
mt	Metric tons

Helmand Valley Project Areas



I. INTRODUCTION

Seen from the air, the thin, twisted thread that is the Helmand River meanders through southern Afghanistan, representing 40 percent of the country's water resources. It rises from the snows of an extension of the Hindu Kush mountain range just south of Kabul and flows in a southwesterly direction where it finally is submerged and lost in the vast deserts and series of marshes along the Iranian border. With a drainage basin that includes roughly the southern half of the country, it is the largest river in Afghanistan. In Helmand Province (the largest province in the country, with 10 percent of the land area) the river passes through dry mountains; rocky outcroppings; and brown, rolling foothills that abruptly demarcate the green areas of cultivation along the narrow strips of flood plain; and between the southern shifting sands of the Registan Desert and the gravel-strewn clay flats of the Dasht-i-Margo (Desert of Death). This was the site of the winter capital of the Ghaznavid Empire and the breadbasket of Afghanistan. Until recently, Afghanistan was a disparate nation of proud, independent tribes and ethnic groups held loosely together by a low-keyed Central Government with an underdeveloped economy of largely illiterate peasant farmers and nomads.

Since the turn of the century, the Afghans have made several attempts to exploit the resources of the Helmand Valley. In the early 1900s, the Afghans built a canal along the Helmand River. In the 1930s, foreign technical assistance was introduced when the Japanese renovated another canal which had been functioning for 200 years. Only nine miles had been completed when their work was interrupted by World War II.

After the War, the Afghan Government had sufficient foreign exchange to enable them to contract for the development of the Valley. The Japanese and Germans, who had previously provided some assistance, had lost the war and were not able to export technical assistance. Of the Allies, the Americans were preferred as the least of several foreign "evils." After the almost 150 years during which the Russians and the British had spheres of influence in this region, they were considered to be traditional enemies of Afghanistan.

The Afghans finally hired the Morrison-Knudsen Company of Idaho to construct irrigation works and roads in the southern Helmand-Arghandab region. Work began by rehabilitating the old canals although later work showed that the original alignments were not the best choices from a technical standpoint. When the rehabilitation work was half completed, Morrison-Knudsen strongly suggested that to make the best use of the renovated canals, a storage dam and reservoir were needed to accomplish the Government's irrigation objectives. Morrison-Knudsen also

suggested surveys to ascertain whether there would be enough water to irrigate the projected development area, but the Afghan Government believed that a simple estimate of plus or minus 20 percent would be sufficient and that the cost of surveys could be avoided. Morrison-Knudsen accepted that decision and work was begun without the surveys.

Morrison-Knudsen's suggestion to build the dam and reservoir caused the project to grow beyond the financial and administrative capacity of the Afghans. In 1955, the Afghan Government submitted a loan request to the U.S. Export-Import Bank for an integrated project in the Helmand Valley, along with several related projects. This would have provided resources for the Afghans not only to complete the project but to expand it. Partially because of concerns about financial and administrative capacity, the Export-Import Bank would not accept the proposal until it was cut down to focus on the Helmand Valley alone, even though the Afghans argued that this would not produce sufficient returns in time to repay the loan. After extensive negotiations, the Bank approved a \$21 million loan to cover Morrison-Knudsen's work. Unfortunately, this left the Afghans committed to the project without the resources to undertake it in the comprehensive, coordinated manner the Afghans themselves thought necessary.

By the early 1950s, several key changes gradually emerged. The loan had raised the stakes of success. The Afghan Government was concerned from the outset about its ability to repay the loan. Through the Export-Import Bank, the U.S. Government and its prestige were drawn directly into the development of the Valley. Morrison-Knudsen's decision to proceed with a badly placed canal and without surveys later proved to be fatal weaknesses of the project. From this point forward, the tale of U.S. assistance in the Helmand Valley is one of making the best of a difficult situation.

A. History

Although the history of what happened in the Valley could easily fill several volumes, looking at some of the high (and low) points provides lessons about planning and implementing such a large and complex project. Table 1 defines periods in the development of the Valley according to participation of key actors.

Between 1960 and 1970, the Helmand Valley "project" became the cornerstone of U.S. involvement in Afghanistan, consuming \$80 million of the approximately \$125 million provided during

that period. The total area under cultivation expanded from 77,000 hectares to 145,000 hectares.¹

Table 1. Development Periods of the Helmand Valley Project

Date	Activity
1946-1949	Autonomous development period--Afghans used foreign exchange to contract with the U.S. firm, Morrison-Knudsen.
1949-1959	Period of indirect U.S. involvement. Export-Import Bank loans.
1960-early 1970s	Period of direct U.S. activity in Helmand Valley--the U.S. Bureau of Reclamation primarily provided assistance on systems design, maintenance, and drainage.
1973-1974	Period of U.S. withdrawal--no U.S. participation in Helmand Valley.
1975-1979	Period of renewed U.S. assistance--the U.S. Soil Conservation Service concentrated on the drainage problems in the Valley.

One of the Afghan Government's main reasons for irrigating the Valley was to settle nomads on the newly arable land. However, in the early 1950s, 4,300 hectares were under cultivation but only 600 were being worked by settlers.² Large land-owners were farming 250 hectares, the Government had an 800-hectare experimental farm, and Morrison-Knudsen was farming the remaining 40 hectares. By this time 15,000 settler applications had accumulated but remained unprocessed because of the lack of administrative capacity.

¹Including areas in Helmand and Arghandab Valleys.

²This only includes areas in Helmand Valley because Arghandab was not yet part of the project area.

In response to the urgings of the Export-Import Bank, the Afghan Government established the semi-autonomous Helmand Valley Authority (HVA) "to process settler applications, determine plot sizes and farm and village locations, and help the settlers construct their homes, prepare their land, and follow superior cropping and water use practices."³ This shifted the project from an irrigation project to a more integrated approach.

By 1953, Afghan funds and the first Export-Import Bank loan had been used for storage dams; a diversion dam; two long feeder canals; and about 7,500 hectares of sparsely settled, partially irrigable land. Drainage, land development, and water delivery systems were still needed in several areas. The Export-Import Bank provided a second loan of \$18.5 million to continue work in the Helmand Valley.

Between 1953 and 1958, the Arghandab and Darweshan dams and the South Canal were completed. About 50 miles of the Darweshan Canal (with drains) were expected to be completed by the time the second Export-Import Bank loan funds were exhausted.

Although progress was being made, more funds were still needed. The Afghans sought and received assistance from the U.S. International Cooperation Administration (ICA--a predecessor to AID), whose predecessor agency had been involved in the justification of the second Export-Import Bank loan. The first technical assistance advisors who were sent to the Valley in the early 1950s realized that the Afghans did not distinguish between Morrison-Knudsen engineers, employees of a private U.S. company, and ICA advisors, representatives of the U.S. Government.

In 1954, Morrison-Knudsen's construction responsibilities were transferred to the Afghan Construction Unit (ACU) which had been established under HVA to continue Morrison-Knudsen's construction and maintenance of canals, drains, and roads in addition to land leveling. Beginning in 1960, the U.S. assistance came largely through the services of the U.S. Bureau of Reclamation teams that replaced Morrison-Knudsen in assisting HVA and ACU. These teams included engineers, hydrologists, and technicians who provided technical assistance on drainage systems, design, and maintenance. In addition, many Afghans received administrative and technical training in other parts of Afghanistan, the United States, and elsewhere.

³Aloys A. Michel, The Kabul, Kunduz, and Helmand Valleys and the National Economy of Afghanistan (Washington, D.C.: National Academy of Sciences, National Research Council, 1959) p. 157.

The Afghan and American technicians were facing tremendous constraints. The main canal had been pieced together from already existing sections. By its very location it interfered with proper drainage. A new canal built higher on the escarpment would have let water flow down across the fields with the excess allowed to run off at the lowest point where drainage canals should have been located. But because the canal was too low, the natural gravity drainage was hampered and fields tended to be overwatered. This led to the natural salts in the soil percolating to the surface and destroying the soil. Another reason for overwatering was that the fields were not flat and therefore the farmers would put enough water on the field to reach the higher spots which meant the lower spots received much more water than they needed.

The solution offered by the Americans as the most technically efficient was to move the farmers off their land, to level the whole area with bulldozers, and to return farmers to "equivalent" pieces of land. Facing tremendous uncertainty as to what land they would get back, where it would be located, and if it would be as much as they had before, the farmers refused to leave their land. Indeed, they met the bulldozers with rifles. These very real constraints consumed most of the time and attention of the American and Afghan staffs in the Valley throughout the 1960s.

Although the HVA staff was more than fully occupied dealing with the problems they already had, their authority was expanded in 1965 to include the area around the Arghandab tributary in Kandahar Province. HVA became the Helmand-Arghandab Valley Authority (HAVA) and the Afghan Construction Unit became the Helmand-Arghandab Construction Unit (HACU). HAVA's responsibilities expanded functionally as well as geographically to include education, agricultural research and extension, housing, health, utilities, and industrial development. This sort of comprehensive coordination and integration of development projects would require even more extensive managerial and administrative skills than a large irrigation project.

By the beginning of the 1970s, AID funding was nearing its termination date, and a new project was to be negotiated. But it had become more and more apparent to the AID staff that the constraints to accomplishment of land leveling and canal re-alignment were too great to overcome. The AID Administrator visited the Valley in 1973 to put pressure on the Governor (who was also the president of HAVA) to fulfill HAVA's obligations. The Governor said that it was unfortunate that the farmers

Within the year, then Secretary of State Henry Kissinger paid a brief visit to Afghanistan, meeting with Prime Minister Daoud. Daoud told him that the Helmand Valley was an "unfinished symphony" and was suffering without continued American assistance. Reportedly, Kissinger assured Daoud that the United States would live up to its responsibilities.

Although there was considerable technocratic resistance to a renewed involvement in the Helmand Valley both in Kabul and Washington, political forces prevailed. The new project focused on overcoming several weaknesses of the old project. It would attempt to make the Helmand Valley an Afghan project and improve relations with the Government of Afghanistan and with HAVA. It would also address the problems of a lack of overall planning and surveys, and the lack of adequate provision for drainage.

Several measures were taken to increase the Afghans' sense of involvement in and control of the project. Counterpart training was a major part of the project, and every effort was made to help the Afghans take the lead. The use of the "fixed-amount reimbursement" approach in this project was designed to make the U.S. the resources an incentive to accomplishment and also to allow more rapid action than Afghanistan would otherwise have had the resources to undertake. Unfortunately, due to the way that the approach was modified, it did not work very well in the Afghan context.

Another measure to improve United States-Afghanistan relations was to bring in the U.S. Soil Conservation Service (SCS) as technical advisors. A main criticism of the Bureau of Reclamation had been that its approach had been too narrowly an "engineering" one. It was hoped that SCS was more oriented to on-farm water management than to capital-intensive projects.

Because the Valley had never been adequately surveyed and the overall development of the irrigation system had never been adequately planned, the new project began with surveys. Drainage work was to be planned and scheduled as the required data became available. Drainage work was begun in the four areas where it was most essential: Nad-i-Ali, Marja, Shamalan, and Darweshan. (Much of the Valley would eventually need drainage, but it was urgently required in these areas.) Main drains for the outlet to the river were reconstructed in each of the areas, and work on the farm drains was started in the most poorly drained areas. Much of the land in the worst condition had been recently settled by the previously landless, many of whom were poor.

A hand-labor strategy was chosen primarily because of its benefits for the poor, but also because it was particularly appropriate for digging the small farm drains. As the farm

♦

laborers began to understand what was being done, they went home and tried it on their own farms.

As a result of the drainage program, land which had gone out of production was returned to 75 percent of its optimum production within a year. During the short period of time that drainage work was carried out before the coup in 1978 and the Soviet invasion in 1979, drains were constructed for several thousand hectares of the 15,000 hectares of irrigated land in the four selected areas. Although this was quite a small percentage of the land area, it was land with the most serious salinity problems and many of the farms had been abandoned. Where drainage was provided, net incomes rose to two or three times the income received prior to the project. However, additional drainage would eventually be required throughout the Valley, together with attention to marketing, water management, transportation, and the other aspects required for optimal production.

Prior to the Soviet invasion in 1979, some progress was being made with the drainage project. Nonetheless, the Afghans were left with a considerable amount of drainage work yet to be accomplished. Although people were trained and the benefits of drainage well demonstrated, it is most unlikely that the Afghans have been able to continue the work since the last U.S. project personnel left in August 1979.

In spite of the evidence which indicates that agricultural production in the Valley is continuing much as it was before the Soviet invasion, progress has undoubtedly been disrupted by the refugees leaving the country and the vulnerable position of anyone associated with the Americans.

B. Political Economy

When governments are involved in a project, by definition the process becomes political. The Afghan Government in Kabul began the Helmand Valley investment and, therefore, formulated its own expectations of what could be accomplished. The overall goal was to make the desert bloom again, although there were more specific economic and political purposes as well. The economic purposes which evolved included the following:

1. Exploiting the waters of the Helmand River system and the potentially arable land around it to grow much of the food, animal feed, and fiber which were then being imported into Afghanistan. This would save considerable foreign exchange by (1) ensuring a year-round water supply, making it possible to grow more than one crop each year on the same land; (2) introducing new

crops and products, including the development of a dairy industry, as well as providing raw materials needed for the expansion of industrial projects; and (3) introducing machine cultivation and the use of chemical fertilizers.

2. Establishing domestic industries that use locally produced raw materials (textiles, for example).⁴
3. Increasing the generation of electric power, a later addition to the project purpose.

In addition to the economic purposes, several political purposes were particularly salient. Deciding to settle nomads in the Valley may have been one attempt at national integration, a major issue since the development of an Afghan state. Afghan ethnic groups have a reputation for being fiercely independent, and nomads presented a continuous political threat to the Government even when they were Pushtun, the same ethnic group as the Government in power. The Helmand Valley inhabitants were also primarily Pushtun. By investing in the Valley, the Government in Kabul saw an opportunity to help develop its home area and control some of the nation's one to two million nomads.

The Government accepted the (now demonstrably false) assumption that nomads wanted to settle down and would do so if given the land. Because nomads felt that their traditional way of life was superior to farming, their social prestige was in herding, not farming. Many of the nomads were quite wealthy, contrary to the popular belief in "impoverished kochis." Successful resettlement, especially of nomads who have no farming experience, requires a range of incentives and support services. During the course of the project, health, education, and five other social services were added to make this a more integrated effort, but social services were never given as much priority as building infrastructure and increasing production.

In contrast to the goals of the Afghan Government, making money was, justifiably, the primary goal of Morrison-Knudsen, the private company whose contracts in the Valley first raised the issue of American prestige. When the Afghans requested that they begin work in the Valley without costly surveys, Morrison-Knudsen agreed because they were being paid to implement the Afghans' plans. The long-run cost effectiveness was not their responsibility, although they did inform the Afghans

⁴Marion Brant, "Recent Economic Development," Afghanistan in the 1970s, Louis Dupres, ed., (Washington, D.C.: Praeger Publishers, 1974) p. 94.

of the economic risk. Morrison-Knudsen bore neither the consequences of that economic risk nor the concurrent political risks, which were unintentionally assumed by the U.S. Government, whose prestige was tied up in the project even before it had any direct involvement. From the very beginning, the U.S. Government was in the disadvantageous position of trying to protect U.S. stature in Afghanistan by attempting to salvage the efforts of a private U.S. contractor over which it had no control.

The U.S. Government's initial intent, therefore, was to try to make the most of what had already been invested. In essence, the United States planned to help achieve the Afghan Government's goals in the Helmand Valley in order to enhance the U.S. image in Afghanistan, as well as to assist in the development of an Afghanistan that would be less dependent on its neighbor, the Soviet Union. Accordingly, the initial purposes for U.S. investment in the Valley were fairly broad and overlapped the Afghan goals: to develop water resources, infrastructure for agriculture, and facilities for education and community services. As the Cold War intensified, the early goal of protecting U.S. prestige became more and more important as the United States attempted to counterbalance the significant and growing presence of the Soviet Union.

Clearly, much of what occurred in the Valley and the ways in which it occurred did so because individuals involved in the project had their own interpretations of the different sets of goals. It is quite likely that the Afghan Government in Kabul saw things somewhat differently than the governors of Helmand Province who were also, during their terms as governors, the presidents of the Helmand Valley Authority. Similar variations in viewpoint occurred on the U.S. side. There were three major bureaucratic entities involved: AID and its predecessors, the Bureau of Reclamation, and the Soil Conservation Service, as well as all their supporting offices in the United States. How all these parties interpreted and attempted to achieve these goals over time shaped the course of events and their impact in the Helmand Valley.

II. PROJECT IMPACTS

With some sense of the broad outlines of project activities, the question becomes what changes did the project bring to the people in the Helmand Valley?

A. Changes in Income

In spite of the difficulty of making the desert bloom, farm incomes did rise dramatically.⁵ To understand how incomes changed in the Valley, it is necessary to understand variations in the Valley based on ecology, previous irrigation infrastructure, and length of settlement. One of the major accomplishments of the Helmand Valley project was to develop two previously uncultivated areas, Marja and Nad-i-Ali, by establishing irrigation works, giving land and assistance to settle nomads, and creating "villages." In other areas, the water potential was exploited by adding irrigation canals and drainage. Additional settlers were also located in these previously settled areas (26 percent in Shamalan, 30 percent in Central, and 40 percent in Darweshan), with a big settlement effort taking place in 1973. Some parts of the Valley, particularly the northern and southern ends, had very limited potential for further development of land or water resources. Therefore, no additional settlers were located there, although the resident farmers may have received the benefit of other services (credit extension, new inputs).

The farming areas along the Arghandab were quite different from those along the Helmand. Lands had been almost fully utilized prior to the project and allowed little room for new settlers. In addition, Kandahar was an established fruit growing area with a major urban market; the latter fact accounted for net incomes in the area being almost double those of field-crop-growing Helmand areas in 1970. The data available indicate that net incomes had increased eightfold from the highly profitable fruit market.⁶

Because most of the effort was going into field-crop-growing areas along the Helmand River, information on the Arghandab is much thinner. It is difficult to assess how much of increased income is due to project activities. It seems likely that incomes would have increased without the project because of the well-established fruit production and distribution, but that project services such as credit and inputs must have assisted in the rate of increase. The emphasis in the discussion reflects the emphasis in the project and in the information, and centers on the impact in Helmand, represented

⁵The data presented in this section come from the three farm economic surveys carried out in the Valley in 1963, 1970, and 1975.

⁶The 1975 Farm Economic Survey does not include data for Arghandab.

by the selected areas of Marga, Nad-i-Ali, Shamalan, and Darweshan.

To understand the changes in income in the Helmand Province, we can compare incomes in the two newly reclaimed areas, Marja and Nad-i-Ali, which had all new settlers, to Shamalan and Darweshan, which were already being farmed and therefore received smaller numbers of new settlers (see Table 2).

Table 2. Net Farm Income (in Afghanis)

Area	1963 ¹	1970 ²	1975 ³
Nadi-i-Ali	1,316	30,763	27,223
Marja	4,208	31,020	26,209
Shamalan	7,803	37,170	54,959
Darweshan	8,203	29,711	70,509
Arghandab	7,098	47,711	--

¹1963 Afg 65 = U.S.\$1.

²1970 Afg 75 = U.S.\$1.

³1975 Afg 55 = U.S.\$1 (inferred).

Sources: 1963 Farm Economic Survey, p. 49.
1970 Farm Economic Survey, p. 59.
1975 Farm Economic Survey, p. 111.

Nad-i-Ali was first settled in 1951, primarily with nomads. Marja followed several years later. Both areas were newly established farm lands. Although the first figures available are for 1963, we have evidence which indicates that there were many problems in the Nad-i-Ali area. Even by 1963, off-farm income was making up for the losses in farm income. Shamalan and Darweshan were flood-plain areas which had been traditionally farmed. Holdings were highly fragmented but with a number of large wealthy farmers, which skewed the incomes to the higher end of the scale. The steady supply of irrigation water made it possible to bring more land into production. As this occurred, more farmers were settled in these areas as well. Even though some of the problems that had arisen in Nad-i-Ali were corrected when Marja was settled, the nomads' lack of farming experience resulted in incomes in 1973 which

were approximately one-third of the incomes in Shamalan and Darweshan, the previously settled areas. An equally salient factor is that the best quality land in the Valley was already being farmed when the Helmand Valley project began. Therefore, not only were the new farmers in Nad-i-Ali and Marja constrained by lack of farming knowledge and experience, they had to deal with poorer land. Even though knowledge and experience increased over the years, the poor land remained a great constraint.

In 1970, incomes in the four areas had equalized significantly, but by 1975 they were almost as far apart as they had been in 1963. One significant difference between the previously settled and newly settled areas was that in the previously settled areas, farm incomes continued to increase in 1975, whereas they fell somewhat in the newly settled areas. Between 1963 and 1970, the greatest increases in farm incomes were in Shamalan, but in the period between 1970 and 1975, Darweshan took a commanding lead. Marja, Nad-i-Ali, and Shamalan are the three areas in Helmand with the most severe drainage and salinization problems, and by 1975 the effects of these problems were seriously apparent even in Shamalan with its better land and more experienced farmers. The increases in drainage and salinization problems in these three areas were very great between 1970 and 1975, as shown in Table 3.

Table 3. Percentage of Farmers Reporting
Drainage and Salinization Problems

Area	1970	1975
Nad-i-Ali	20	48
Marja	33	60
Shamalan	11	37

Source: 1975 Farm Economic Survey.

Poor water management over time has a cumulative effect on the soil by exacerbating an area's tendency toward waterlogging that leads to soil salinization. It is, therefore, not surprising that the problems should be particularly serious in the recently settled areas of Nad-i-Ali and Marja. The more experienced farmers in Shamalan were capable of dealing with these problems somewhat more effectively, and their incomes rose accordingly. Nonetheless, they were not used to so much water, and the resultant serious drainage and salinization problems limited even their potential income.

Not surprisingly, farm size was a determining factor in farm revenues. For example, farms in Darweshan were larger than the 8.6-hectare average in 1970 and also had larger average incomes than most other districts. But as more farmers were settled, average farm size in Darweshan dropped to almost one-third of that area's 1963 average, and farm income increased almost tenfold (see Table 2). Increased yields and crop choices accounted for these differences. Between 1963 and 1970, yields improved because the stable water supply and increased availability of credit allowed for the use of high-yielding variety seeds, larger amounts of fertilizer, and more double cropping. However, the influx of new settlers from 1972 to 1975 led to more waterlogging and a worsening of the salinization problem.

In the early 1970s, farmers continued to plant primarily wheat but switched to high-yielding varieties. Cotton plantings expanded significantly when the price increased dramatically, and cotton then replaced corn as the second most commonly planted crop.⁷ Although cotton commanded a higher price at the market, it depleted soil fertility more quickly than did other crops. (This could be corrected with more fertilizer, but that would substantially increase the costs.) By 1975, yields had stagnated because of the decreased soil quality due to the salinity, sodicity, and drainage problems.

In sum, incomes increased significantly throughout the area, but their expansion was limited by deteriorating soil quality. In 1970, in the newly settled areas, the new farmers' incomes started to catch up with those of the more experienced farmers, but these farmers also felt the greatest impact from the worsening soil problems. By 1975, however, the gap between the new farmers' incomes and those of the more experienced farmers was widening.

When AID renewed its assistance in the Helmand Valley in 1975, it wisely chose drainage as its project. The emphasis on drainage was clearly well founded, and the project was very effective in the small area that was completed before work was interrupted by the Soviet invasion in 1979. Where drainage was provided, net incomes rose to two to three times the incomes prior to the project. Unfortunately, only a small percentage of land needing drainage received attention before work was interrupted.

⁷U.S. Government regulations prohibit AID from encouraging the production of cotton overseas. The British were working with farmers on cotton production and built a cotton gin in Lashkar Gah.

It is important to remember that tremendous variations in soil quality, farm size, access to resources, farming experience, and so on existed throughout the Valley. A variety of farming systems were practiced in the Helmand Valley. Nowzad and Musa Qala were in the foothills, and farmers relied on indigenous water systems to irrigate their highly fragmented holdings. Farmers in areas that did not need irrigation water achieved somewhat better incomes than did the farmers in the reclaimed areas of Nad-i-Ali and Marja, as can be seen in Table 4.

Table 4. 1975 Farm Income Per Farm
(in Afghanis)¹

Area	Total Revenue	Total Costs	Net Farm Income
Nowzad	44,540	9,802	34,738
Musa Qala	59,226	18,911	40,315
Nad-i-Ali	74,196	42,850	31,346
Marja	62,563	36,047	26,516
Shamalan	91,366	30,333	61,033
Darweshan	121,199	48,908	72,291

¹U.S.\$1 = Afg 55; average population per farm = 10.

Source: 1975 Farm Economic Survey, p. 110.

An interesting factor affecting the income averages within districts was the threshold of investment in inputs required to get any level of return. In Shamalan and Darweshan, where there were a number of settled wealthy farmers and many new smaller farmers, the averages may mask a wide range of variation. Some of that variation can be assessed by looking at who lived in the Valley and was affected by the project.

B. Social Impact

The Helmand Valley inhabitants comprise three main groups: the farmers living in the Valley when the intervention began, the nomads who have traditionally migrated in and out of the Valley on a seasonal basis, and the new settlers. In the early days, most of the new settlers were nomads, but later settlement regulations required that settlers have farming experience. In 1973, 48.5 percent of the settler population had had

previous farming experience, 32 percent had been nomads, and 19.4 percent had been in other occupations.⁸

The ethnic composition of the Helmand Valley was extremely complex. Very roughly described, Pashtu-speaking tribal groups were in the north and central parts of the region, and Brahui- and Baluch-speaking groups in the south.⁹ During the two decades of project experience, 5,500 farm families were settled in the area, representing many of the tribal, ethnic, and linguistic groups in Afghanistan.¹⁰ In the 1950s and 1960s, HVA policy was to recruit and settle related families together as a single social unit with one representative handling the legal formalities.¹¹

An example of the power an organized group like this can have occurred in the early 1970s. The traditional system of land tenure and inheritance had led to development of fields with irregular borders and of kin groups with clusters of holdings. When the bulldozers arrived for the land leveling which was to precede land consolidation, the farmers met them with guns. Because of favorable climate conditions that year, the farmers had been doing very well, and this had magnified their distrust of any change in the status quo. As an organized group, they fended off outside interference.

Not necessarily because of this incident, the recruitment and settlement policy changed in the 1970s, and families were settled in ethnically heterogeneous areas. Although the policy was designed to avoid strong group loyalties as well as friction with indigenous groups in the area, it left the new settlers at a political disadvantage with respect to the Government and the other groups.

Settlers who came to Helmand Valley to get land varied in status and wealth, as did the farmers already living in the Valley. There was a popular impression that nomads were poor, but a number had considerable wealth invested in livestock.

⁸Ghulam Farouq, Socio-Economic Aspects of Land Settlement in Helmand Valley, Afghanistan. A thesis submitted to the American University of Beirut, June 1975, p. 57.

⁹Richard Scott, Tribal and Ethnic Groups in the Helmand Valley, Occasional Paper No. 21, Afghanistan Council, Asia Society, Spring 1980, p. 2.

¹⁰Farouq, p. 23.

¹¹Scott, 1980, p. 3.

Not everyone in Helmand Valley owned land. There were two types of sharecroppers, buzgars and kashtagars. The buzgar generally contributed only his labor and received 20 percent of the crop produced. The kashtagar contributed labor, plow animals, and seed, and participated in farming decisions; for this, he received about half the crop.

Although the intricacies of social groupings and power relationships preclude overgeneralization, some basic changes in relationships were similar to those observed in other parts of the world. For example, wealthy and influential men in Afghanistan, called khāns, get tractors first because they have the collateral to get a loan from the Agricultural Development Bank. One anthropologist related the following conversation:

Late on one March afternoon in 1973, while waiting with some tribesmen to return to their village from the bazaar in the capital of Ghaznai province, I asked the Mulgurey, or companion of their khān, if another man from down the valley with whom his khān was conferring was also a khān. With a gesture too emphatic to misunderstand, rather like spitting on the ground after saying something distasteful, he tossed his head and replied: "Sahib Khān--he is no khān. He has a tractor but plows only for himself. It is that way now with tractors. There are no khāns anymore." He quickly added that his own khān, Adjub Gul Khān, was indeed a "real" khān and pointed out as proof that when his tractor had arrived from Kandahar, Adjub Gul Khān plowed for everyone even before he plowed his own fields. As for others with the wealth and connection to acquire tractors, he went on, they did not "feed the people" and "tie the knot of the tribe" but, instead, "ate the people." Again, "it is that way now, with tractors."¹²

In Helmand Valley, a khān is motivated to mechanize his farm because he can then farm it personally using wage labor. This gives him a better claim to the land if land reform laws are passed. The 1975 Farm Economic Survey of the Valley cites an early study which documented the shift, with the introduction of tractors, from the use of sharecroppers (who had previously furnished the draft animals, and as a result received a larger share of the crop) to farm laborers. Technicians in the Valley noted the continued pattern of labor displacement in the early 1970s.

¹²Jon W. Anderson, "There Are No Khāns Anymore: Economic Development and Social Change in Tribal Afghanistan," Middle East Journal, XXXII, 2, Spring 1978, p. 171.

The project had begun equitably by giving land to those who had none, but Government policies were inadvertently fostering inequities. Small farmers could not get loans for tractors, and tenants were being displaced from their traditional positions due to the fear of a land reform designed to assist them. Improved credit for the small farmers would only make things worse for their sharecroppers.

Clearly the benefits to individuals in the Valley varied. Did the Government achieve the kinds of benefits they expected from their considerable investment in the Valley as a whole?

C. Macroeconomic Impacts

When the original investment in the Helmand Valley was made in the 1940s, it was recognized that agricultural exports were the primary source of foreign exchange earnings. The Afghans expected their investments in the Valley to lead to increased outputs, which would be earning foreign exchange within a decade.

In the past 40 years, Afghanistan has invested approximately \$60 million in addition to the \$70 million provided by AID. Overall, this led to an increase of land under cultivation from 77,000 hectares to about 145,000 hectares in the early 1970s. In rough figures, \$1,300 was invested in each hectare brought under cultivation.

It has taken about three times longer than expected, but the Valley "is now contributing importantly to Afghanistan's overall agricultural production."¹³ Wheat production increased from 32,000 metric tons in 1966, 1.5 percent of national production, to over 110,000 metric tons in 1975, which was 4 percent of national production.¹⁴ Cotton production increased from several thousand tons to 30,000 metric tons, or 19 percent of national production.

Nonetheless, the emphasis in the Valley was on increased wheat production, with wheat yielding several times more than the tonnage in cotton. Large quantities of wheat were being

¹³Brant, p. 103.

¹⁴Reconnaissance, p. 8. The HAVA Extension Service estimated production at 150,000 metric tons. However, their cuttings were not random, and there are always bureaucratic incentives to overestimate. Therefore, the figure from the 1975 Farm Economic Survey is used although farmers tend to underestimate.

exported to other parts of Afghanistan. Because wheat was the staple crop, farmers shifted to high-yielding variety wheat before they planted cotton. However, when the price of cotton on the world market tripled in the early 1970s, cotton production in the Valley increased dramatically. As wheat continued to give farmers a good return, a pattern frequently developed in which farmers planted cotton as a second crop after the high-yielding variety wheat which matured quickly.

While receiving about half the money invested in Afghanistan's agricultural sector, the Helmand Valley has generated little foreign exchange. Although wheat may well be the wisest near-term planting choice for Valley farmers (indeed the only wise choice), and although it is being exported to other parts of Afghanistan, from a foreign exchange point of view the project was a failure.

In spite of this serious problem, the Afghan Government has continued to push for development of the Helmand Valley for 40 years. It has been suggested that there has been an unwarranted "importance attached to expenditures already made rather than an acceptance of the only economically justifiable approach to past expenditures of 'bygones are bygones.'" To save face or simply [based] on erroneous understanding of economic principles, projects such as the Helmand have been continued despite admission of the low returns expected on future outlays.¹⁵ These "low returns" are, of course, economic returns, and yet one need not necessarily assume that the Afghans were economically motivated. It is more likely that the Afghans placed higher priority on the political goals of national integration. By providing services to the farmers which had positive economic benefits, the farmers were tied more directly into the national economy, and political unrest was avoided.

D. Aspects of Integration: Beyond Irrigation

Integrating the Helmand Valley into the nation occurred by design, but the internal integration of the project developed from the course of events. In the development of the Helmand Valley, social benefits were assumed to flow from the increased economic well-being to be brought about by irrigation and improvements in agriculture. During the late 1960s, it was recognized that the project produced social consequences, and attempts were made to integrate social service delivery into

¹⁵Maxwell Fry, The Afghan Economy: Money, Finance and the Critical Constraints to Economic Development (Leiden: E.J. Brill, 1974) p. 201.

the project activities. "HVA, which had begun as an agency to expedite the settlement program, had become by the mid-1960s an agency that coordinated utilities, education, agricultural research and extension, housing, health, and industrial enterprises."¹⁶ The United States did play a direct role in several sectors.

E. Impact on Health and Water Supply

According to AID's 1972 audit:

A U.S. grant of \$500,000 and Afg. 6 million from PL 480 funds enabled HVA to construct and establish Lashkar Gah hospital, a 50-bed medical center which is also the public health headquarters for the region. Each year between 15 and 20 thousand outpatients are treated at the program.¹⁷

Peace Corps volunteers, a U.S. Public Health Service doctor, CARE-MEDICO, the United Nations, and the World Health Organization all played a role in improving health care in the region. As early as 1962, it was reported by Benz and Holmgren that smallpox, typhoid, and malaria had been brought under control but that tuberculosis and diphtheria were still problems.

Dysentery was also a major problem, and there were sanitarians that provided advice. But at that time and throughout the life of the project, most of the project area did not have a good clean supply of water. Part of the difficulty was the cultural attitude that running water is safe and standing water (including well water) is neither pure nor good-tasting. Therefore, the preferred source of water was the irrigation canals. In 1971, Richard Scott, the Mission anthropologist, suggested that "a long-term indoctrination program in public health, along with the idea of the advantages of boiling their present sources of water,"¹⁸ would be required. Although U.S. assistance did provide a safe water supply for Lashkar Gah, inadequate maintenance rendered its purity questionable.

¹⁶1973 History, p. 45.

¹⁷1973 History, p. 46.

¹⁸1973 History, p. 40.

F. Impact on Education

In 1959, it was estimated that 95 percent of the population in the Helmand Valley was illiterate. By 1962, Benz and Holmgren stated:

In the past few years, education facilities have increased on a large scale in the Helmand Valley. Village schools (for the first three grades) serve most all of the villages. Many elementary schools (grades 4 to 6) have been established as villages or groups of villages have met the minimal requirements of 40 fourth grade pupils needed to establish an elementary school. The quality of teaching, however, remains poor in the village. Most schools are taught by untrained teachers while the pupil load in the elementary schools is excessively high for good teaching.¹⁹

During the 1960s, 12 village schools, 9 elementary schools, 1 junior high, and 1 high school were built with direct U.S. assistance.²⁰ However, only a small percentage of eligible students, approximately 4,000, were enrolled. Part of the problem was that the children's labor was needed on the farm. Another consideration that might have kept farm children out of school was their parents' knowledge that formal education teaches children not to be farmers and not to work with their hands.²¹

A serious need for farm education in the Helmand Valley was identified by an evaluation done in 1973:

The extension service cannot modernize agriculture alone. . . . The communication of information is not always vertical. It doesn't only come from the extension worker. Farmers learn about crops, land, water, maintenance of farm machinery, health, nutrition and first aid from

¹⁹John S. Benz and E.N. Holmgren, The Helmand Valley: An Overall Review, (Washington, D.C.: USAID/Afghanistan, November 22, 1962) p. 15.

²⁰1972 Audit, p. 47.

²¹Louis L. Mitchell and David A. Garner, "An Assessment of the Helmand-Arghandab Valley Region: A First Draft for Comments by HAVA and USAID," p. 18.

their friends, neighbors, family and community leaders.²²

This informal communication network should have been supported by some type of nonformal farm education. The impact of such nonformal education would have been considerably greater in the Valley than formal education, particularly considering the small number of students who are reached in the schools.

G. Development Project Integration

Although the Helmand Valley Authority was created to provide coordination of the activities in a variety of sectors (which is what makes a project an integrated rural development project), water resources aspects of the project so totally overshadowed the other activities that functionally the Helmand Valley project was an irrigation project. This emphasis is not, however, without substantial justification. By the early 1970s, the experience in the Helmand Valley showed that social gains without economic gains to support them cannot be self-sustaining. New settlers became sick or left, hospitals and health services could not be supported without outside assistance, inadequate maintenance threatened the small water system already in place, and parents could not afford to send their children to school.

Many people have tried retrospectively to justify, in social terms, U.S. involvement in the project. In addition to the fact that the United States was only indirectly and partially responsible for what positive social impacts occurred in the Valley, even these were dependent on the project's economic success for continued sustainability. Unfortunately, environmental problems led to a "Catch 22" for project sustainability and success.

H. Environmental Impacts

The technical rehabilitation of the Helmand Valley watershed was a gargantuan job with Sisyphean elements. Even as progress was being made in reclamation, crop production levels began to decline because of rising water tables and soil salinization, particularly in the newly reclaimed and settled areas. Before the dams had been built, the relatively few farmers in the Valley had been able to adequately and efficiently manage

²²Mitchell and Garner, p. 18.

the limited available water. Land and water resources were essentially balanced.

After the dams and canals were built, several management problems occurred. Farmers did not let their fields lie fallow for as long as they had before the infrastructure was built because of the availability of a year-round water supply. Too much water was applied to land near the source of the canals, and thus too little was available near the ends.

Because there was no charge for the water (based on the Koran's statement that water which falls from the sky must be free) or for the maintenance of the canals, no constraints existed on the use of available water. Quite literally, farmers had more water than they knew what to do with. "Too much water is potentially more dangerous than too little, for a lack of water hurts only this season's crop, while a superabundance will not only ruin one crop but the soil itself, making it unfit for crop farming for years to come."²³ Good on-farm water management requires an understanding of the long-term consequences of water and land use.

This was equally true of management of the system, but systemwide water management also necessitated a view of the bigger picture. Therefore, the Government controlled the water in the main canals. The secondary canals were controlled by the indigenous distribution system. This indigenous system, however, had been developed to deal with a scarcity of water, not an abundance. Poor water management caused the severe waterlogging and salinity problems that jeopardized the sustainability of project benefits.

In searching for solutions, it was clear that more education was required, and many of the American technicians felt that some type of fee would limit the amount of water a farmer used. In addition, a fee or tax would provide a local source of revenue that would be necessary for HVA's long-term sustainability. The Afghans, however, were unwilling to take on such a tough political issue, made even tougher by its religious undertones. Over the next decade, this issue became almost a symbolic representation of the difference in attitude between the Afghans and the Americans. Some discussion of Afghan institutions helps to provide an explanation.

²³Donald N. Wilber, Afghanistan, Its People, Its Society, Its Culture (New Haven: HRAF Press, 1962) p. 240.

I. Institutional Impacts

Although surprisingly little has been written about the Helmand Valley Authority as an institution, several important factors have become clear. Setting up a semi-autonomous organization meant that attention was focused on the Valley and that greater efficiency was thought to be possible through greater control. Although the president of HVA was responsible to the Prime Minister, he reported through the Minister of the Interior whose portfolio included settlement. This may help to explain in part the greater emphasis HVA placed on settlement rather than on export production.

As a semi-autonomous organization, HVA competed with the central ministries. HVA was given control within a circumscribed geographic area over functions for which the ministries would normally have been responsible. In recruiting personnel, HVA naturally turned to the ministry staffs. With its independent budget, HVA was able to pay higher salaries and lure away top staff members. This obviously added a note of tension to the tenor of the competition. Because HVA required support from these organizations, the antipathy that had been created was clearly counterproductive.

The president of HVA was also the governor of Helmand Province, a patronage position which traditionally had allowed the exploitation of the people living in the province. The forced changes inherent in a development project of this scale exacerbated local mistrust. It was, for example, the governor's responsibility to move farmers from their land for large-scale land-leveling. Because the farmers did not trust him enough to have the confidence that equivalent land would be returned to them, they would not leave their land. The governor was not able to fulfill his responsibilities to the project, causing considerable disruption in project implementation.

A classic example of HVA's operating style occurred when Sayed (descendants of the Prophet Mohammed) villagers became aware of the alignment of canals in their village only when the construction had begun and thus made this obvious. When they realized the canal would be built right through their village, they sent spokesmen to protest to HVA and other project and provincial officials. Arguments ensued and the spokesmen spent the night in jail. "The construction schedule was altered to complete the through-the-village segment of the lateral immediately in an attempt to preempt any organized resistance"²⁴

²⁴Scott, 1980, p. 20.

Other difficulties developed as a result of cultural differences. To assist HVA in the major undertakings in the Valley, AID had assigned technical personnel as advisers. As is so often true, language and cultural differences created barriers. American advisers neither worked in the same offices as their counterparts nor worked the same schedules as the Afghans. The Americans lived and worked in separate, very American environments, keeping U.S. office hours and observing U.S. holidays. The English language ability of many of the Afghans was far more limited than had been anticipated, and few Americans spoke any of the local languages. In retrospect, the problems caused by communication difficulties are not surprising.

The Helmand Valley project was typical of several other characteristics in the arena of foreign aid. Large-scale projects will always be identified with the donors, and thus the donor must plan broadly for whatever may be necessary for project success. There is also a tendency for donors to take the lead. This was especially true in the case of a large-scale area development project such as Helmand Valley that required planning and management skills not commonly found in Third World countries. The goal orientations of the two bureaucracies differed: a manipulative/extractive orientation existed among the host country administrators while an obligation/expenditure-of-funds orientation existed among donor administrators. This situation did not easily lend itself to free and open communication.

Not only was communication between HVA and the Americans a problem, but there was also a long-standing, tacit HVA policy not to communicate with farmers. Indeed, most of the project staff were as much outsiders to the Valley as were the Americans. When the dams were completed in the 1950s and the first water was released, the farmers had been given no advance knowledge. The Americans said it was an Afghan responsibility to tell the farmers, and the Afghans said that the farmers understood about irrigation. However, the Pushtun word for dam describes an earthen structure several feet tall. The farmers were unable to conceive of the quantity of water involved in this huge new project, much less to prepare for it.

All parties must communicate clearly to one another if tragic mistakes are to be avoided. It has been said that "the major difficulty likely to be faced by any aid program in Afghanistan is the lack of fundamental knowledge about the

country's complex environment."²⁵ This is aptly illustrated by the prevailing ignorance of both Afghanistan's socioeconomic environment and its physical environment. The introduction of high-yielding varieties of wheat in 1967 is a telling example. The local variety of wheat ripens in 9 months, producing 12 pounds of wheat for each pound of seed. The high-yielding variety ripens in 4 1/2 months and produces 20 to 30 pounds of wheat for each pound of seed. With wheat that ripens that quickly, two crops a year were possible. Unfortunately, the wheat matured at the same time that great flocks of birds were passing over the Helmand Valley on their annual migration. That year, the birds got fat and the farmers did not.

Although the American "specialists" did not always fully understand the complex environment, when they did communicate with the Afghans, particularly the Afghan farmers, useful compromises could be found. An American horticulturalist had been working with farmers on the advantages of fertilizer. The farmers told him that by crumbling pieces of old dirt walls and spreading them on newly planted fields, productivity would increase. As a scientist, the American decided to show them how much better fertilizer was for this purpose. He planted three test plots, one using pieces of crumbled walls, one using fertilizer, and one using both. To his surprise, the plot with the fertilizer and the pieces of crumbled wall did considerably better than the field with the fertilizer alone. It took him more than a year and some new equipment to learn that the crumbled wall served to increase the depth of the seedbed which in turn lowered the soil temperature by two degrees, improving germination. The depth reached by the ox-drawn plow's blade was too shallow, and the pieces of crumbled wall compensated by adding depth to the plowed soil. Tractors could dig to a slightly greater depth, but without fertilizer and adequate water, loss of topsoil and loss of moisture through overexposure caused further problems. The three factors had to be very carefully balanced.

Communicating shared information provided the best opportunity for creative solutions to the multiplicity of problematical issues. Occasionally this process worked, but much too often the different cultures and bureaucratic styles interfered with this kind of communication and cooperation.

²⁵Robert M. Burrell and Alvin J. Cottrell, Iran, Afghanistan, Pakistan: Tensions and Dilemmas, (Washington, D.C.: Center for Strategic and International Studies, Georgetown University, 1974) pp. 43-44.

III. CONCLUSIONS

As with so many development projects, a wide range of opportunities for development activities existed in Afghanistan but not necessarily a local demand for those activities in the area where they were provided. Rural Afghanistan (Afghanistan was 94 percent rural), specifically the Helmand Valley, was indeed underdeveloped--average incomes were low, illiteracy high, and physical and social infrastructure lacking. Population in the Valley area was sparse, at seven persons per square kilometer. Most of the population was concentrated near the water sources, including areas along the Helmand River, in the foothill regions to the north, and in small valleys with streams, springs, or karez systems as water sources.

Although during the project the farmers in the Valley would benefit from the regularized water supply and increased incomes, the idea for the project came from the Central Government and not from the Afghan communities which were traditionally quite independent. The water in the Helmand River was one of the Government's prime targets of opportunity for planned development, and it proceeded to exploit this valuable resource.

Because water was the scarcest resource, throughout the project's history the issue of scarce water continually overshadowed the problems of new settlers and other human problems. Indeed, the technical development of the irrigation system alone would have been enough to fully occupy the bureaucracy, but at some point the success of infrastructure projects always boils down to the people who use them.

The actions of people and the benefits people derive from projects both determine project success. This was shown to be true in the Helmand Valley, where people's lack of knowledge and ability in water management exacerbated the technical problems of poor drainage and salinity. Although the farmers had not asked for the project in the first place, they were forced to look to the Government for technical solutions to increasing problems of poor drainage, water mismanagement, and salinity. The expensive technical infrastructure was dropped into the Valley before the farmers or new settlers had the water management sophistication to deal with it. The lack of expertise in water management caused the soil to deteriorate so that rather than benefiting from experience, the farmers were literally losing ground. If the Government had begun with the human problem of training farmers to manage the water they had, and then later expanded the irrigation project with dams and canals as the farmers became more technically sophisticated, the development of the Valley might have proceeded more easily.

Nonetheless, very considerable gains in total production were achieved during the course of the development of the Helmand Valley. Over 100,000 hectares were brought under production, fertilizers and high-yielding varieties of seeds were brought into widespread use, and double cropping increased dramatically. Nonetheless, the increased quantity of crops produced, especially of key crops, was not large enough to have a significant impact on the country's export situation.

Most individual farmers were much better off as average net incomes increased manyfold. Although incomes were still fairly low by national standards, the Helmand Valley probably had the highest incomes of the agricultural areas in Afghanistan.

The United States was responsible for providing some social services in the Valley. But for the benefits from these services to be significant and sustainable, they would have had to have been given much higher priority and to have been better integrated into the project. Moreover, in areas where salinization and waterlogging seriously hampered production, negative social impacts followed (impoverishment, illness, and out-migration).

The progress that was made will not continue without sustained efforts to improve drainage. The Soviet invasion made moot the U.S. goal of protecting American prestige. The continued Russian presence raises serious questions about the likelihood of drainage work continuing and the sustainability of benefits derived from increased production and incomes.

Contrary to common opinion, the Helmand Valley development project was not a total failure; positive benefits did result from the project. However, to have been a greater success, those benefits would have to have been larger when compared with the very high costs. If work on drainage could be continued or resumed in the near future, some modest success should still be achievable.

IV. LESSONS LEARNED

1. Mixing goals of export production with resettlement programs moves a project in two different directions at the same time, making it extremely difficult to achieve either goal.

2. An area development project centered on a project to increase agricultural production must consolidate the gains made in production before any positive social impact can be sustained.

3. For benefits from social services to be significant and sustained, they must be given high priority (although not necessarily from the beginning of the project), and they must be integrated into the project. Nonformal agricultural education, for example, both benefits and is benefited by an agricultural production project, unlike typical formal education which influences children not to be farmers.

4. For successful nomad settlement programs, three conditions must exist: (1) economic incentives great enough to convince them to give up their traditional way of life; (2) adequate social services to assist them in the transition and to act as additional incentives; and (3) communication of agricultural information, creatively integrated into the project (farmers do not get information only from extension agents), with enough resources to reach even very small farmers.

5. It is often repeated that when a project becomes the donor's project and is no longer the host-country's project, trouble will develop. While this is probably an oversimplified statement for any foreign aid project, the pressures on donors are such (in terms of accountability and some level of project "success," for example) that existence of some degree of this phenomenon is difficult to avoid.

The common goals must be clearly defined, agreed upon, and planned for on a long-term basis. A balance must exist between donor control of project activities, host country training (on-the-job training as well as formal), joint decisions, and a free flow of relevant information among all parties. Given the context outlined above, this balance is difficult to achieve. At every point in its history, the Helmand Valley development project only achieved a partial balance of these elements.

6. A project attains the most success when donor personnel, host country officials, and beneficiaries work together. To do so, real efforts must be made to communicate. Knowledge of the local language is a predicated factor. Donor personnel should work nearly the same hours as their counterparts²⁶ and have offices in close proximity. Jobs of both groups should be structured to provide adequate time, transportation, and incentives for them to work with project beneficiaries.

7. There may be a tradeoff between efficiency and participation--the fewer people involved, the less time something takes. (This says nothing about quality, which could be

²⁶One reader pointed out how deeply rooted this problem is: Afghans work half days, six days a week, and it would be illegal for American Government employees to work these hours.

considered an attribute of either, both, or neither.) In Helmand, the assumption that the number of people involved could be limited to the technicians building the infrastructure was false. When the technicians attempted to begin land-leveling in the Shamalan in the early 1970s, the farmers forcefully demonstrated that they were very much involved. Participation of everyone involved is the most efficient approach, but when the number of people is so great, more preparation time needs to be allocated.

8. There's no getting off cheap. Programs to "make the desert bloom" are enormous and expensive. If AID is involved in any way, its success is dependent on the success of the entire effort. No success can accrue to AID for a well-designed and well-implemented portion of a project which fails as a whole. Although every constraint does not have to be tackled at once, if provision is not made at the beginning for all essential elements, AID risks getting sucked further and further into a haphazard effort with no prospect of final success.

APPENDIX A

ANALYSIS OF FARM ECONOMIC SURVEYS

by Emily Baldwin

I. BACKGROUND

The analysis of economic changes in the Helmand-Kandahar region is based on four farm economic surveys covering a 15-year period: 1963, 1970, 1975, and, to a lesser extent, 1978. The discussion of economic changes in the Helmand Valley from 1963 to 1978 will look first at changes in farm characteristics over time, then at the changes in farm outputs, and finally at the resultant changes in farm income. All information contained in this appendix is taken from the four farm surveys mentioned and will be referenced simply by year and page number.

The amount and quality of information available in these four surveys (particularly in 1963, 1970, and 1975) are remarkably good but not, however, without limitations. Some problems of comparability between surveys are unavoidable; for example, there is the case where district boundaries changed over time, making political units dissimilar and subsequently noncomparable. Some problems occur where the sample size is too small to yield reliable statistics. The data are also limited by such factors as farmer accuracy and reliability in recalling information over time or in making judgments on priorities. Other problems arise from different emphases between the surveys. The 1963 and 1970 surveys, for example, included districts in both Helmand and Kandahar Provinces, while the 1975 survey collected data in Helmand Province exclusively. The 1978 survey report is very brief and based on a very small sample size in only three districts (one of which appears in none of the other three surveys). Due to these data constraints, the districts listed in the tables have been limited to those with figures available most consistently over time. Thus, the new settler areas of Nod-i-Ali and Marja are found in all tables, as are the traditional farming areas of Shamalon and Darweshan. Other districts are included with partial data, where available. The 1978 data have not been included in the tables since they appear particularly unreliable (i.e., based on an especially small sample population). This caution to the reader--that the data, and subsequently the conclusions drawn from them, should be read carefully--is not intended to negate all value in the findings, but rather to avoid placing too much faith in any one particular number or set of numbers.

II. FARM CHARACTERISTICS AND YIELDS

For the region as a whole, the average size of a farm appears to have decreased over time.¹ As noted in the 1975

¹The 1978 survey does not include data on farm size.

survey report (32), "the average farm size of the sample farmer was 6.92 hectares in 1975..., down substantially from the 8.60 hectares of the 1970 survey." However, there is considerable variation across districts in changes in farm size, as can be seen in Table A-1. There were no dramatic changes in farm size over time in the two predominantly settler districts of Nod-i-Ali and Marja, a not surprising fact given the relative uniformity of the land size granted to each settler at any given time (1963:5). On the other hand, the traditional farming areas of Shamalon and Darweshan experienced significant declines in average farm size. In Darweshan, at least, the dramatic decline was due in part to a tradeoff in the district of "water for land" (1970:11), a Helmand Valley Authority program in which farmers gave up some of their land in exchange for water rights. The slight declines in farm size in Nod-i-Ali and Marja between 1970 and 1975 may reflect the change in amount of land new settlers received, from 19-30 jiribs (4-6 hectares) before 1973 to 10 jiribs (2 hectares) after 1974 (1975:20).

If any trend can be noted in farm size over time, it is a decrease in the disparity of farm size across districts. With the exception of Khanishin district, Table A-1 seems to indicate a modest trend toward equalization of farm size over time. The 1975 data indicate some fragmentation of land holdings, that is, that there were more small farms and fewer large farms in 1975. (However, information concerning land distribution within each district is not available for all years, which begs the question of "equalization" to some extent.)

Figures on total farmland, of course, do not give an adequate indication of the actual amount of land farmed. For this reason, Table A-1 also shows the percentage of each farm planted to crops. The relatively low percentage of cropland to farmland in many areas was attributed to a number of factors. Lack of water was a major reason for idle land, but insufficient soil fertility and lack of labor and capital for fertilizer, farm equipment, and other farm inputs were also reasons given (1963:14). The availability of certain critical farm inputs seems to have varied widely throughout the area and may help to explain the varying amounts of idle land per farm. For example, insufficient water in Shamalon, Panjawai, Maiwand, Nowzad, Khanishin, and Zamin Dawar districts may have been a major factor limiting cropland (1963:13-14; 1975:68). On the other hand, poor soil fertility, combined with waterlogging and salinity, seemed to be a major limiting factor in cropland for Nod-i-Ali and, perhaps, Marja (1963:14; 1970:11). It is interesting to note that on-farm problems changed over time. For example, by 1975 (74), drainage and salinization were considered a major problem by relatively more farmers, while insufficient irrigation water was considered a problem by fewer farmers.

32

Table A-1. Average Size of Farm for Selected Areas,
Helmand Valley, 1963, 1970, and 1975

	1963 ¹		1970 ²		1975 ³	
	Hectares Owned	% Farmed	Hectares Owned	% Farmed	Hectares Owned	% Farmed
<u>Helmand</u>						
Nod-i-Ali	6.39	61	6.89	68.5	6.24	95.03
Marja	4.65	92	5.89	91.5	5.33	82.55
Shamalon	8.52	70	5.49	80.7	4.96	91.13
Darweshan	24.78	55	8.53	88.4	9.19	92.16
Khanishin	-	-	26.95	67.5	38.25	31.7
Nowzad	-	-	7.47	39.5	6.39	53.7
<u>Kandahar</u>						
Arghandab	4.65	67	6.37	57.9	-	-

¹1963 Farm Economic Survey, p. 6.

²1970 Farm Economic Survey, p. 10.

³1975 Farm Economic Survey, p. 33.

Despite the many apparent problems in expanding the percentage of land farmed, however, there does seem to have been a trend toward increased cropland as a percentage of farmland over time (see Table A-1). This increase is particularly true for Shamalon, Nod-i-Ali, and Darweshan. This trend was reinforced by an increase in double cropping over time. As the 1970 survey (40) reports: "Double cropping is on the increase, especially in Helmand, and is likely to continue to increase even more rapidly in the near future because of a concerted extension effort by HAVA." The 1975 survey (86) lends credence to this by reporting that 66 percent of the sample farmers were double cropping by 1975, compared to 44 percent in the 1970 sample. The 1978 survey (4) reports that "generally more land was doublecropped in 1978 in comparison to 1975." Thus, while average farm size itself may have declined over the years surveyed, there is some indication that there was actually a net expansion in cropland since greater percentages of somewhat smaller holdings were farmed (1975:46).

The increase in the percentage of land cropped and double cropped may be explained in part by an increase in the availability and use of such farm inputs as credit, fertilizer, and mechanization (1970:40). The 1975 survey (61-66) notes an increase in the use of credit from 64 percent of the sample farms in 1970 to 87 percent in 1975. Most borrowing was from the Agricultural Development Bank which supplied loans for fertilizer purchases. It follows, then, that fertilizer use in the Helmand area rose dramatically over time (1975:34). Tractors also became more available in the region, reflecting a greater availability of capital (1975:66). Finally, irrigation drainage installation efforts in the mid-1970s helped to reduce soil salinity and improve the moisture absorption capacity in some areas (1978:2-4).

Along with the increased availability of capital, fertilizer, mechanization, and other inputs, as well as the increase in double cropping and percentage of cropland farmed, was a shift in the area away from traditional subsistence crops (especially wheat) and toward commercial crops (particularly cotton). Thus, the 1975 survey (114) stated that "by almost every major indicator, agricultural production for the market, as opposed to production for home consumption, has increased dramatically." High-yield varieties of wheat and corn were apparently a critical factor in increased yields and production, thereby allowing some capital formation and crop diversification toward more commercial crops (1970:20). The shift toward commercial farming is evidenced by the increased production of cotton: "The advent of cotton as an important cash crop since 1963 contributed to a breakdown of subsistence agriculture and helped usher in an era of farm business where capital formation can take place" (1970:20).

Improved seeds and fertilizer were introduced to the Helmand-Kandahar area simultaneously. Farmer acceptance of both the high-yield variety seeds and fertilizer appears to have been relatively rapid (1970:34). While wheat remained the dominant crop in the area--66 percent of total cropland in 1975--traditional varieties were largely replaced over time by high-yield varieties in combination with fertilizer (1975:39). Cotton became the second most important crop in the region, representing 29 percent of the cropland (1975:39). The increase in cotton production was encouraged by a "price support policy for cotton delivered to the government-owned processing plant in Lashkar Gah" (1975:39). Fruit and vegetable production remained relatively unchanged and small in comparison to other crops. (What fruit and vegetable production there was remained relatively concentrated in Kandahar Province.) The lack of marketing infrastructure (roads, readily available markets) is in large part responsible for the relatively low production of these crops (1975:48).

To summarize the changes in farm characteristics from 1963 to 1978: average farm size decreased while the amount of farmland actually cropped increased slightly; cropland increased as a result of greater availability and acceptance of high-yield variety seeds, fertilizer, credit, mechanization, and commercial crops. These changes in turn allowed for significant improvements in crop yields, with resultant effects on farm income.

The 1963 survey (27) found that "low yields were associated with shortage of the factors of production." Where capital for farm investment was in short supply (as evidenced by lack of oxen), wheat production was found to be lower; the more capital (i.e., oxen) per farm, the higher the wheat yields. Lack of farm management skills was also found to be a deterrent to higher yields. This was particularly true for districts such as Nod-i-Ali and Marja where large numbers of new settlers were farming. As discussed in the previous section, however, the availability of many of the factors of production greatly increased between 1963 and 1978. Not surprisingly then, crop yields responded to the increase in inputs; the results for wheat and cotton can be seen in Table A-2. All districts experienced large increases in crop yields for both traditional (wheat) and commercial (cotton) crops in the 1960s. Consistent increases in yields in the 1970s, however, are not quite so apparent, as evidenced by the 1975 data in Table A-2. Nonetheless, yields per jirib grew to be much more similar across districts over time.

Yield increases in wheat and corn are attributed in part to the greater use of high-yield varieties (1970:24). Dramatic increases in the use of fertilizer with these high-yield varieties and with cotton are also responsible. However, while some factors of production helped to increase production over time, other factors may have served to inhibit yields from increasing even more. Soil quality in Nod-i-Ali and Marja, for example, was reportedly very poor (1963:31; 1975:96). Availability of irrigation water was another factor determining the amount of yield increases. Where water was available in sufficient quantities, high-yield variety crops "were usually cultivated, but where it was scarce or undependable, traditional, lower yielding varieties were planted" (1975:96). On the other hand, even where water was available, poor water drainage and salinization also served to limit yields in some districts (1963:30). Finally, the shift to more commercial crops may have led to a decrease in rising yield rates over time, since increased cotton production takes greater fertility out of the soil (1963:30). The figures shown in Table A-2 would seem to support this.

Table A-2. Average Yields for Wheat and Cotton, by Region for Selected Areas (in mons/jirib),¹
1963, 1970, and 1975

Region	Wheat					Cotton			
	1963 ²	1970 ³		1975 ⁴		1963 ²	1970 ³	1975 ⁴	
		Local	Improved	Local	Improved			Single	Double
Nod-i-Ali	7.3	43.7	119.3	66.2	68.4	6.3	37.5	42.5	18.4
Marja	18.0	33.6	107.2	34.6	74.0	11.3	36.2	40.0	23.2
Shamalon	41.1	65.4	89.7	49.1	100.4	23.1	55.6	46.9	32.9
Darweshan	31.0	40.0	76.7	57.4	83.3	8.0	39.3	63.6	23.2

¹100 mons/jirib 2.281 mt/ha
48.8 mons/jirib 1 mt/ha

²1963 Farm Economic Survey, p. 11.

³1970 Farm Economic Survey, pp. 26-27.

⁴1975 Farm Economic Survey, p. 97.

With such large increases in farm yields between 1963 and 1978, and with the shift toward the cultivation of more cash crops, it might be expected that net farm revenues would also rise dramatically. The large increases in the use of certain farm inputs--fertilizer, credit, and machinery--all served to increase farm costs dramatically as well. The net effects of these increases in costs and in farm production are the topic of the final section.

III. FARM COSTS AND REVENUES

As Helmand area farmers shifted increasingly toward commercial crops in the 1960s and 1970s, their use of farm inputs and consequently their costs of production also increased. This increase in total farm costs is evident in Table A-3. Fertilizer was the single largest expense for area farmers, representing an average 43 percent of total production costs per hectare by 1975 (91) and over 50 percent by 1978 (5). Increased expenses for high-yield variety seeds and interest rate payments were closely correlated with the growth in fertilizer costs, since the shift to high-yield variety crops required more fertilizer, the money for which was usually borrowed by farmers at the beginning of the growing season. Tillage--either animal or tractor plowing--represented another 21 percent of total production costs per hectare for the average Helmand farmer (1975:91). Increases in farm costs, however, appeared to slow after 1975; the 1978 survey (5) indicates that the slight increases in farm costs between 1975 and 1978 "may be accounted for by inflation."

Farm costs for 1963 may be overstated somewhat since the Government apparently did not charge farmers for the operation and maintenance of the dams, irrigation, and drainage systems or for equipment and machinery repair and replacement, although these costs were included in the survey's calculations of costs. In addition, "interest charges assumed on the farmer's investment in land, livestock, and equipment as part of the farm costs... were not actually paid...." (1963:47). Unfortunately, information on whether or not the Government charged for irrigation system operations and maintenance or whether interest charges were paid by farmers by 1970, 1975, or 1978 is not available. The fact remains that total costs rose dramatically over time in all districts and that the majority of farm expenses went to fertilizer, seeds, and equipment for plowing and harvesting.

However, as farm costs rose dramatically after 1963, farm income also rose dramatically, mostly as a result of the large increases in crop yields discussed in the preceding section

Table A-3. Costs and Returns (including off-farm), 1963, 1970, and 1975
(in Afghanis)¹

	1963 ²			1970 ³			1975 ⁴		
	Total Farm Costs	Gross Income	Net Income	Total Farm Costs	Gross Income	Net Income	Total Farm Costs	Gross Income	Net Income
<u>Helmand</u>									
Nod-i-Ali	4,062	5,378	1,316	18,429	49,734	31,305	42,850	74,196	31,346
Marja	4,617	9,325	4,708	15,374	47,149	31,775	36,047	62,563	25,516
Shamalon	15,492	23,295	7,803	20,417	59,418	39,001	30,333	91,366	61,033
Darweshan	20,315	28,518	8,203	27,514	59,557	32,043	48,908	121,199	72,291
<u>Kandahar</u>									
Arghandab	10,263	17,361	7,098	19,524	79,552	60,028	--	--	--

¹ 1963 Afg 65 = U.S.\$1
1970 Afg 75 = U.S.\$1
1975 Afg 55 = U.S.\$1

² 1963 Farm Economic Survey, p. 49.

³ 1970 Farm Economic Survey, p. 59.

⁴ 1975 Farm Economic Survey, p. 111.

(1978:5). As the 1963 survey observed (47): "There are undoubtedly several reasons for low farm revenue in relation to costs. One of the most important is the low production of most crops per jirib and the low production of milk, eggs, and meat per unit of livestock." Thus, as crop production increased over the years, and as farmers shifted to greater production of cash crops, gross farm revenues naturally increased tremendously.

The figures on gross income and particularly those on net income that are shown in Table A-3, however, should be read with considerable caution for a number of reasons. First, the 1963 figures do not include income earned by farm families from off-farm labor, whereas the 1970 and 1975 figures apparently do. Income figures for 1963 are probably considerably understated, especially for the settler regions of Nod-i-Ali and Marja where approximately half of all farmers earned some off-farm income, many of them from employment with the Helmand Valley Authority in road, drainage, and building construction and maintenance jobs² (1963:51). In addition, the great increases in farm incomes are due in large part to the shift toward commercial crops and away from traditional subsistence farming. That is, farm cash income may have increased dramatically by 1975, but the farm family's noncash income in the form of subsistence crops undoubtedly understates effective family income for the earlier years.

The large differences in net income between districts is a troubling factor, particularly given that incomes seemed to equalize significantly in 1970, then grow more disparate thereafter. Several explanations can be offered. Farmers in Nod-i-Ali and Marja were, on average, considerably less experienced at farming than farmers in other districts. Therefore, they may not have been able to increase their incomes as much as other farmers, due to lack of farming and management experience. Soil fertility in Nod-i-Ali and Marja also was admittedly poor, which may have further hindered whatever efforts farmers made to increase production and yields, and thereby income. Too little irrigation water or poor water drainage and salinization may also have hindered efforts to increase yields, and therefore income.

²A reading of the high incidence of off-farm income in many parts of the Helmand area can be ambiguous. On the one hand, a large amount of income earned off-farm may signify sufficient on-farm labor and capital such that the family could afford to release some labor to earn greater cash income. On the other hand, high levels of off-farm employment may indicate insufficient capital and land to employ all family members fully.

Farm size also played a role in farm revenues: regardless of yields, larger farms had larger gross revenues. As seen in Table A-1, Darweshan district had a larger-than-average farm size for the area as a whole; Table A-3 shows this same district to have a much larger gross--and a larger net--income than most districts as well. Income depended to some extent on crop diversity (which in turn depended in part on proximity to an adequate market). Thus, net income for Kandahar Province (Arghandab district) in 1970 [was] almost double the net income of most districts in Helmand Province, "undoubtedly because much of Kandahar was an established fruit growing area, whereas large areas of Helmand [were] devoted to the production of extensive field crops" (1970:49). Districts which emphasized commercial crop production--e.g., cotton--tended to have higher cash revenues than districts with greater production of more traditional crops. The fact that in 1975, 73 percent of all of Darweshan district's cash receipts came from cotton may in part explain its higher gross and net incomes. Finally, the increases in net income as seen in Table A-3 can to some extent be attributed to inflation (1970:49).

IV. CONCLUSIONS

In the 15 years from 1963 to 1978, a number of changes took place which affected farmers in the Helmand-Kandahar region. Most significantly, agricultural production shifted from more traditional to more commercial crops as a result of the availability and acceptance of new high-yield variety seeds and of accompanying inputs such as fertilizer, institutionalized credit, more reliable irrigation water, and greater animal and mechanical means of plowing the land. At the same time, while total farm size decreased somewhat in these years, cropland itself may have increased slightly as a result of greater availability of water and capital for fertilizer and equipment. As a result of these changes, farm costs and crop yields both rose dramatically. The increased farm revenues resulting from higher yields of cash crops on a slightly greater area of cropland stayed ahead of the increase in farm costs. Thus, while in 1975 per capita incomes in the area were still low by national standards, significant progress had been made (1975:114).

APPENDIX B

A NOTE ON CORRUPTION

A NOTE ON CORRUPTION

Corruption on the part of Afghan officials is a frequently voiced complaint. "They will agree to anything to get a project approved and get the equipment they want, and then they won't make good on those agreements." The most notable case where such charges were brought was the land-leveling program. The governors of Helmand Province, who were also the presidents of HAVA, were unable to convince the farmers to move off their land so that the land could be leveled. In several instances, when the workers arrived with the land-leveling equipment, the farmers arrived with guns.

The governorship of the Helmand Valley has traditionally been a patronage position, obtained by bribing the king or prime minister with a salary supplemented by bribes (making the Government's position somewhat more entrepreneurial than Americans were used to). Therefore, it is not surprising that the farmers were unwilling to leave their land or to believe that the governor would ensure that they got a comparable parcel of land when the land leveling was completed.

Some Americans have been very critical of the corruption in Afghanistan. On the other hand, when the Afghans called for an evaluation of Morrison-Knudsen's work in the Valley in the 1950s, the ICA contract was awarded to Tudor Engineering, a subsidiary of Morrison-Knudsen. Some commentators have defended this on the grounds that no other firm would have nearly as much background or experience in Afghanistan.

Corruption, often, is a matter of cultural definition.

42

BIBLIOGRAPHY

- Anderson, Jon. "Tribe and Community among the Ghilzai Pashtun." Anthropos 70 (1975).
- Anderson, Jon W. "There Are No Khāns Anymore: Economic Development and Social Change in Tribal Afghanistan." Middle East Journal, XXXII, 2 (Spring 1978).
- Anderson, Jon W. and Richard F. Strand. Ethnic Processes and Intergroup Relations in Contemporary Afghanistan. New York: Middle East Studies Association of North America, Summer 1978.
- Baron, Lloyd I.Z. "The Water Supply Constraint: An Evaluation of Irrigation Projects and Their Role in the Development of Afghanistan." Ph.D. Dissertation, McGill University, Montreal, 1975.
- Benz, John S. and E.N. Holmgren. The Helmand Valley: An Overall Review. Washington, D.C.: USAID/Afghanistan, November 22, 1962.
- Brant, Marion. "Recent Economic Development." In Afghanistan in the 1970s. Edited by L. Dupree and L. Albert, Washington, D.C.: Praeger Publishers, 1974.
- Burrell, Robert M. and Alvin J. Cottrell. Iran, Afghanistan, Pakistan: Tensions and Dilemmas. Washington, D.C.: Center for Strategic and International Studies, Georgetown University, 1974.
- Chaffetz, David. Afghanistan: Russia's Vietnam? Special Paper No. 4. New York: The Asia Society, Afghanistan Council, Summer 1979.
- Charpentier, C.J. "One Year After the Saur-Revolution." Afghanistan Journal, 6 (1979).
- Dupree, Louis. "The Changing Character of South-Central Afghanistan Villages." Human Organization, 14 (Winter 1956).
- Dupree, Louis and Linette Albert, Eds. Afghanistan in the 1970s. Washington, D.C.: Praeger Publishers, 1974.
- Dupree, Louis. "Settlement and Migration Patterns in Afghanistan: A Tentative Statement." Modern Asian Studies. 9 (1975):404-405.
- Etienne, Gilbert. L'Afghanistan on les Aleas de la Coopération. Paris: Presses Universitaires de France, 1972.

- Ferdinand, Klaus. "Nomad Expansion and Commerce in Central Afghanistan." Folk Dansk Etnografisk Tiasskrift, 4 (1962).
- Fletcher, Arnold. Afghanistan, Highway of Conquest. Ithaca, New York: Cornell University Press, 1965.
- Franck, Peter G. "Technical Assistance Through the United Nations: the UN Mission in Afghanistan, 1950-1953." In Hands Across Frontiers. Edited by Howard M. Teaf, Jr. Ithaca, New York: Cornell University Press, 1955.
- Franck, Peter G. "Economic Progress on Encircled Land." Middle East Journal, 10 (Winter 1956).
- Fraser-Tytler, William K. Afghanistan: A Study of Political Developments in Central and Southern Asia. London: Oxford University Press, 1967.
- Fry, Maxwell. The Afghan Economy: Money, Finance, and the Critical Constraints to Economic Development. Leiden: E.J. Brill, 1974.
- Griffiths, John Charles. Afghanistan. New York: Praeger, 1967.
- Hamaoui, Ernest. "L'Administration d'Etat Afghane." International Review of Administration Sciences, XXXVI (1970).
- Hashimi, Elaine Frances. Afghanistan's Provinces, Cities, Villages, Secondary Schools, and Higher Level Institutions. Kabul, Afghanistan, August 1970.
- Humlun, Johannes. La Geographie de L'Afghanistan. Gyldendal, Copenhagen: Scandinavian University Books, 1959.
- Kakar, Hasan Kawun. Government and Society in Afghanistan. Austin: University of Texas Press, 1979.
- Kamrany, Nake. Peaceful Competition in Afghanistan: American and Soviet Models for Economic Aid. Washington, D.C.: Communication Service Corporation, 1969.
- Konishi, Masotoshi. Afghanistan. Tokyo: Kodansha International, 1969.
- Maybury-Lewis, David and Thomas Barfield. The Social Impact of Development on Ethnic Minorities. Cambridge, Massachusetts: Cultural Survival, Inc., March 15, 1980.
- Michel, Aloys Arthur. The Kabul, Kunduz and Helmand Valleys and the National Economy of Afghanistan. Washington, D.C.: National Academy of Sciences, National Research Council, 1959.

Mitchell, Louis L. and David A. Garner. "An Assessment of the Helmand-Arghandab Valley Region: A First Draft for Comments by HAVA and USAID," 2 Sawyer 1353.

Newell, Richard S. "Afghanistan: The Dangers of Cold War Generosity." The Middle East Journal, 23 (Spring 1976): 168-176.

Newell, Richard S. The Politics of Afghanistan. Ithaca: Cornell University Press, 1972.

Poullada, Leon B. "Political Modernization in Afghanistan: the Amanullah Reforms." In Afghanistan: Some New Approaches. Edited by George Grassmuck, Ludwig Adamec, and Frances Irwin. Ann Arbor: the Center for Near Eastern and North African Studies, University of Michigan, 1969.

Reardon, Patrick. "Modernization and Reform: The Contemporary Endeavor." In Afghanistan: Some New Approaches. Ann Arbor: the Center for Near Eastern and North African Studies, University of Michigan, 1969.

Rosman, Abraham and Paula G. Rubel. "Nomad-Sedentary Inter-ethnic Relations in Iran and Afghanistan." Journal of Middle East Studies, 7 (1976):545-570.

Scott, Richard. Tribal and Ethnic Groups in the Helmand Valley. Occasional Paper No. 21. New York: The Afghanistan Council, Asia Society, Spring 1980.

Scott, Richard B. "The North Shamalon: A Survey of Land and People, Helmand Valley, Afghanistan." Washington, D.C.: AD/DP, USAID/Afghanistan, August 1971.

Stamberg, L. Helmand-Arghandab Valley Regional Development (1954-1974), mimeo 6/75.

Stevens, Ira Moore and K. Tarzi. Economics of Agricultural Production in Helmand Valley, Afghanistan. Denver, Colorado: U.S. Department of Interior, Bureau of Reclamation, October 1965.

Taussig, H.C. "Afghanistan's Agricultural Problems." Eastern World, XX (March-April 1966):11-13.

Watkins, Nancy Bradley. Afghanistan: Land in Transition. Princeton: D. Van Nostrand Co., 1963.

Wilber, Donald N. Afghanistan, Its People: Its Society, Its Culture. New Haven: HRAF Press, 1962.

45

A.I.D. EVALUATION PUBLICATIONS

The following reports have been issued in the A.I.D. Evaluation Publication series. Those documents with an identification code (e.g., PN-AAG-585) may be ordered in microfiche and paper copy. Please direct inquiries regarding orders to:

Editor of ARDA, PPC/E-DIU
Bureau for Program and Policy Coordination
Agency for International Development
Washington, D.C. 20523
U.S.A.

CROSS REFERENCE LIST BY SECTOR

AGRICULTURAL RESEARCH

Discussion Paper:

- No. 13: AID Experience in Agricultural Research: A Review of Project Evaluations (May 1982) PN-AAJ-611

Impact Evaluations:

- No. 2: Kitale Maize: The Limits of Success (May 1980)
PN-AAH-723
- No. 14: Central America: Small Farmer Cropping Systems
(December 1980) PN-AAH-977
- No. 27: Korean Agricultural Research: The Integration of Research and Extension (January 1982) PN-AAJ-606
- No. 30: Guatemala: Development of ICTA and Its Impact on Agricultural Research and Farm Productivity (February 1982) PN-AAJ-178
- No. 33: Food Grain Technology: Agricultural Research in Nepal (May 1982) PN-AAJ-614
- No. 34: Agricultural Research in Northeastern Thailand (May 1982) PN-AAJ-615
- No. 44: West Africa Rice Research and Development (May 1983)
PN-AAL-012
- No. 48: Tunisia: The Wheat Development Program (October 1983)
PN-AAL-022

Evaluation Report:

- No. 10: Strengthening the Agriculture Research Capacity of The Less Developed Countries: Lessons from AID Experience (September 1983) PN-AAL-020

EDUCATION

Impact Evaluations:

- No. 19: U.S. Aid to Education in Nepal: A 20-Year Beginning (May 1981) PN-AAJ-168
- No. 23: Northern Nigeria Teacher Educational Project (Sept. 1981) PN-AAJ-176
- No. 25: Thailand: Rural NonFormal Education - The Mobile Trade Training Schools (October 1981) PN-AAJ-171

CROSS REFERENCE LIST BY SECTOR

EDUCATION (con't)

Impact Evaluations:

- No. 37: Radio Correspondence Education in Kenya (August 1982)
PN-AAJ-620
- No. 38: A Low-Cost Alternative For Universal Primary Education
In The Philippines (September 1982) PN-AAL-001
- No. 46: U.S. Aid to Education in Paraguay: The Rural
Education Development Project (June 1983) PN-AAL-017

Special Study:

- No. 5: Korean Elementary - Middle School Pilot Project
(October 1981) PN-AAJ-169

ENERGY [Rural Electrification]

Discussion Paper:

- No. 3: Rural Electrification: Linkages and Justifications
(April 1979) PN-AAG-671

Impact Evaluations:

- No. 15: The Philippines: Rural Electrification (December
1980) PN-AAH-975
- No. 16: Bolivia: Rural Electrification (December 1980)
PN-AAH-978
- No. 21: Ecuador: Rural Electrification (June 1981) PN-AAH-979
- No. 22: The Product is Progress: Rural Electrification in
Costa Rica (October 1981) PN-AAJ-175

Program Evaluation Report:

- No. 11: Power to the People: Rural Electrification Sector
Summary Report (December 1983) PN-AAL-027

[Fuelwood]

Special Study:

- No. 1: The Socio-Economic Context of Fuelwood Use in Small
Rural Communities (August 1980) PN-AAH-747

EVALUATION METHODOLOGY/EVALUATION ISSUES

Manager's Guide to Data Collection (November 1979) PN-AAH-434

Discussion Papers:

- No. 8: Assessing the Impact of Development Projects on Women
(May 1980) PN-AAH-725
- No. 9: The Impact of Irrigation on Development: Issues for a
Comprehensive Evaluation Study (October 1980)
- No. 10: A Review of Issues in Nutrition Program Evaluation
(July 1981) PN-AAJ-174

CROSS REFERENCE LIST BY SECTOR

EVALUATION METHODOLOGY/EVALUATION ISSUES (con't)

Discussion Papers:

No. 12: Turning Private Voluntary Organizations Into Development Agencies; Questions for Evaluation (April 1982) PN-AAJ-612

Special Study:

No. 8: Toward A Health Project Evaluation Framework (June 1982) PN-AAJ-619

FOOD AID

Program Evaluation:

No. 6: PL 480 Title II: A Study of the Impact of A Food Assistance Program in the Philippines (August 1982) PN-AAJ-622

Discussion Paper

No. 15: Food Aid and Development: The Impact and Effectiveness of Bilateral PL 480 Title I-Type Assistance (December 1982) PN-AAL-003

Impact Evaluations:

No. 8: Morocco: Food Aid and Nutrition Education (August 1980) PN-AAH-851

No. 39: Sri Lanka: The Impact Of PL 480 Title I Food Assistance PN-AAJ-623

No. 45: PL 480 Title I: The Egyptian Case (June 1983) PN-AAL-015

No. 47: The Impact of PL 480 Title I in Peru: Food Aid as an Effective Development Resource (October 1983) PN-AAL-021

HEALTH/NUTRITION

Discussion Papers:

No. 1: Reaching the Rural Poor: Indigenous Health Practitioners Are There Already (March 1979) PN-AAG-685

No. 10: A Review of Issues in Nutrition Program Evaluation (July 1981) PN-AAJ-174

Impact Evaluations:

No. 8: Morocco: Food Aid and Nutrition Education (August 1980) PN-AAH-851

No. 9: Senegal: The Sine Saloum Rural Health Care Project (October 1980) PN-AAJ-008

No. 36: Korea Health Demonstration Project (July 1982) PN-AAJ-621

CROSS REFERENCE LIST BY SECTOR

HEALTH/NUTRITION (con't)

Special Studies:

- No. 2: Water Supply and Diarrhea: Guatemala Revisited (August 1980) PN-AAJ-007
No. 8: Toward A Health Project Evaluation Framework (June 1982) PN-AAJ-619

INSTITUTION BUILDING

Discussion Paper:

- No. 11: Effective Institution Building: a Guide for Project Designers and Project Managers Based on Lessons Learned From the AID Portfolio (March 1982) PN-AAJ-611

INTEGRATED RURAL DEVELOPMENT

Impact Evaluations:

- No. 28: Philippines: Bicol Integrated Area Development (January 1982) PN-AAJ-179
No. 43: Egypt: The Egyptian American Rural Improvement Service, A Point Four Project, 1952-63 (April 1983) PN-AAL-011
No. 49: HAITI: Hacho Rural Community Development (November 1983) PN-AAL-025

Special Study:

- No. 7: The Vicos Experiment: A Study Of The Impacts Of The Cornell-Peru Project In A Highland Community (April 1982) PN-AAJ-616
No. 18: The Helmand Valley Project In Afghanistan (December 1983) PN-AAL-028

IRRIGATION

Discussion Paper:

- No. 9: The Impact of Irrigation on Development: Issues for a Comprehensive Evaluation Study (October 1980)

Impact Evaluations:

- No. 4: Philippine Small Scale Irrigation (May 1980) PN-AAH-749
No. 12: Korean Irrigation (December 1980)
No. 29: Sederhana: Indonesia Small-Scale Irrigation (February 1982) PN-AAJ-608
No. 31: Sudan: The Rahad Irrigation Project (March 1982) PN-AAJ-610

CROSS REFERENCE LIST BY SECTOR

IRRIGATION (con't)

Impact Evaluations:

- No. 35: The On-Farm Water Management Project in Pakistan (June 1982) PN-AAJ-617
No. 42: Bangladesh Small-Scale Irrigation (April 1983) PN-AAL-010
No. 43: Egypt: The Egyptian American Rural Improvement Service, A Point Four Project, 1952-63 (April 1983) PN-AAL-011
No. 50: On-Farm Water Management In Aegean Turkey, 1968-74 (December 1983) PN-AAL-029

Program Evaluation:

- No. 8: Irrigation And AID's Experience: A Consideration Based On Evaluations (August 1983) PN-AAL-019

LIVESTOCK DEVELOPMENT

Discussion Paper:

- No. 6: The Sociology of Pastoralism and African Livestock Development (May 1979) PN-AAG-922

Program Evaluation:

- No. 4: The Workshop on Pastoralism and African Livestock Development (June 1980) PN-AAH-238

LOCAL GOVERNMENT

Discussion Paper

- No. 17: AID Assistance To Local Government: Experience And Issues (November 1983) PN-AAL-026

Special Study:

- No. 17: Local Government Trends and Performance: Assessment of AID's Involvement in Latin America November 1983 (PN-AAL-023)

POPULATION/FAMILY PLANNING

Discussion Paper:

- No. 5: Study of Family Planning Program Effectiveness (April 1979) PN-AAG-672

Program Evaluations:

- No. 1: Family Planning Program Effectiveness: Report of a Workshop (December 1979)

CROSS REFERENCE LIST BY SECTOR

POPULATION/FAMILY PLANNING (con't)

Program Evaluations:

- No. 2: A.I.D.'s Role in Indonesian Family Planning: A Case Study with General Lessons for Foreign Assistance (December 1979) PN-AAH-425
- No. 3: Third Evaluation of the Thailand National Family Planning Program (February 1980) PN-AAH-006

PRIVATE SECTOR

Impact Evaluation:

- No. 41: Impact Evaluation of Housing Guaranty Programs In Panama (March 1983) PN-AAL-008

Discussion Papers:

- No. 14: Private Sector: Ideas and Opportunities: A Review of Basic Concepts and Selected Experience (June 1982) PN-AAJ-618
- No. 16: The Private Sector, The Public Sector, And Donor Assistance In Economic Development: An Interpretive Essay (March 1983) PN-AAL-007
- No. 18: Free Zones In Developing Countries: Expanding Opportunities for the Private Sector November 1983 (PN-AAL-024)

Special Studies:

- No. 4: The Social Impact of Agribusiness: A Case Study of ALCOSA in Guatemala (July 1981) PN-AAJ-172
- No. 6: The Economic Development of Korea: Sui Generis or Generic? (January 1982) PN-AAJ-177
- No. 9: Private Sector: Costa Rica (March 1983) PN-AAL-005
- No. 10: Private Sector: The Tortoise Walk: Public Policy And Private Activity In The Economic Development of Cameroon (March 1983) PN-AAL-004
- No. 11: The Private Sector And The Economic Development Of Malawi (March 1983) PN-AAL-006
- No. 12: Ventures In The Informal Sector, And How They Worked Out In Brazil (March 1983) PN-AAL-009
- No. 14: The Private Sector: The Regulation Of Rural Markets In Africa (June 1983) PN-AAL-014
- No. 15: The Private Sector: Ethnicity, Individual Initiative, And Economic Growth In An African Plural Society: The Bamileke of Cameroon (June 1983) PN-AAL-016
- No. 16: Private Sector Evaluation: The Dominican Republic (June 1983) PN-AAL-018

CROSS REFERENCE LIST BY SECTOR

PRIVATE VOLUNTARY ORGANIZATIONS

Discussion Paper:

- No. 12: Turning Private Voluntary Organizations Into Development Agencies; Questions for Evaluation (April 1982) PN-AAJ-612

Impact Evaluations:

- No. 7: Effectiveness and Impact of the CARE/Sierra Leone Rural Penetration Roads Projects (June 1980) PN-AAH-751
No. 10: Tunisia: CARE Water Projects (October 1980)
No. 24: Peru: CARE OPG Water Health Services Project (October 1981) PN-AAJ-176

Special Study:

- No. 12: Ventures In the Informal Sector, And How They Worked Out In Brazil (March 1983) PN-AAL-009

ROADS

Discussion Papers:

- No. 2: New Directions Rural Roads (March 1979) PN-AGG-670
No. 7: Socio-Economic and Environmental Impacts of Low-Volume Rural Roads -- A Review of the Literature (February 1980) PN-AAJ-135

Program Evaluation:

- No. 5: Rural Roads Evaluation Summary Report (March 1982) PN-AAJ-607

Impact Evaluations:

- No. 1: Colombia: Small Farmer Market Access (December 1979) PN-AAH-768
No. 6: Impact of Rural Roads in Liberia (June 1980) PN-AAH-750
No. 7: Effectiveness and Impact of the CARE/Sierra Leone Rural Penetration Roads Projects (June 1980) PN-AAH-751
No. 11: Jamaica Feeder Roads: An Evaluation (November 1980)
No. 13: Rural Roads in Thailand (December 1980) PN-AAH-970
No. 17: Honduras Rural Roads: Old Directions and New (January 1981) PN-AAH-971
No. 18: Philippines Rural Roads I and II (March 1981) PN-AAH-973
No. 26: Kenya: Rural Roads (January 1982) PN-AAH-972

SMALL-SCALE ENTERPRISE

Impact Evaluation:

- No. 40: Assisting Small Business In Francophone Africa -- The Entente Fund African Enterprises Program (December 1982) PN-AAL-002

CROSS REFERENCE LIST BY SECTOR

SMALL-SCALE ENTERPRISE (con't)

Special Study:

- No. 13: The Evaluation of Small Enterprise Programs And
Projects: Issues in Business And Community Development
(June 1983) PN-AAL-013

WATER

Discussion Paper:

- No. 4: Policy Directions for Rural Water Supply in Developing
Countries (April 1979) PN-AAG-691

Special Studies:

- No. 2: Water Supply and Diarrhea: Guatemala Revisited (August
1980) PN-AAH-747
No. 3: Rural Water Projects in Tanzania: Technical, Social,
and Administrative Issues (November 1980) PN-AAH-974

Program Evaluation:

- No. 7: Community Water Supply in Developing Countries:
Lessons from Experience (September 1982) PN-AAJ-624

Impact Evaluations:

- No. 3: The Potable Water Project in Rural Thailand (May 1980)
PN-AAH-850
No. 5: Kenya Rural Water Supply: Program, Progress, Prospects
(June 1980) PN-AAH-724
No. 10: Tunisia: CARE Water Projects (October 1980)
No. 20: Korean Potable Water System Project: Lessons from
Experience (May 1981) PN-AAJ-170
No. 24: Peru: CARE OPG Water Health Services Project (October
1981) PN-AAJ-176
No. 32: Panama: Rural Water (May 1982) PN-AAJ-609

WOMEN IN DEVELOPMENT

Discussion Paper:

- No. 8: Assessing the Impact of Development Projects on Women
(May 1980) PN-AAH-725

COUNTRY PROGRAM STUDIES

Evaluation Report:

- No. 9: U.S. Aid to Zimbabwe: An Evaluation (August 1983)
PN-AAJ-605

CROSS REFERENCE LIST BY SECTOR

CROSS REFERENCE LIST BY PUBLICATION SERIES

Impact Evaluations

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18,
19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34,
35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50

Special Studies

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18

Discussion Papers

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18

Evaluation Reports

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11